A School Flora

WATTS

Josephine Peake
Sept. 1904

presented by her
loving father.

SCHOOL FLORA

A SCHOOL FLORA

FOR THE USE OF

ELEMENTARY

BOTANICAL CLASSES

BY

W. MARSHALL WATTS, D.Sc. (LOND.) B.Sc. (VICT.)

PHYSICAL SCIENCE MASTER IN THE GIGGLESWICK GRAMMAR SCHOOL

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PREFACE

THE object of this little work is to provide the student who has mastered the elements of botanical science with a Flora of such small size as to be easily carried on country rambles, which shall enable him readily to identify the common plants with which he will meet.

It has been sought to render the task of determining an unknown plant as easy as possible by making each step of the process to consist in deciding which of *two opposite* characters the plant under examination possesses. An example will best explain the way in which the book is to be used. The first table (on p. 9) is used to determine the Sub-Class to which the plant belongs. When this has been made out the tables under each division are used to determine the Natural Order, and then in like manner the Genus and Species are to be found. We will suppose that the plant which the student has for determination is the common Germander Speedwell—a well-known little plant with bright blue flowers. The plant being a flowering plant, we have to determine whether it is a dicotyledon or monocotyledon? Its net-veined leaves and 4-partite corolla leave no doubt that it is a dicotyledon. We pass on then to 4, and ask —Is the corolla present as well as the calyx? and the answer being in the affirmative, the next point to decide is 6, whether the stamens grow on the corolla? Evidently they do, and the plant therefore belongs to **Corollifloræ.** Turning now to the

classification of the plants belonging to Corollifloræ (p. 12), we proceed as follows :—

Quest. Ovary superior or inferior? *Ans.* Superior. Turn then to 53. *Quest.* Stamens hypogynous or epipetalous? *Ans.* The bright blue corollas easily drop off and carry the two stamens with them ; the stamens are therefore epipetalous. We pass on to 59, and the ovary being all in one piece and therefore syncarpous, and the leaves not being succulent, we come to 60. *Quest.* Ovary 4-cleft and style basilar, or style terminal? *Ans.* Terminal. 62. *Quest.* Stamens 5, or 2, 4, or 6? *Ans.* There are 2 stamens. 63. *Quest.* A shrub or a herb? *Ans.* A herb. 66. *Quest.* Stamens 4 or 2 or 6? *Ans.* 2. Refer then to 67. Since the stamens are two in number and not 6, we pass on to 69, and lastly, since there are 4 petals we decide that our plant belongs to the Natural Order **Scrophulariaceæ.** The next thing is to determine the genus and the species. Turning then to p. 102, we easily see that since there are 2 stamens and not 4 or 5, the plant must be a **Veronica.** Again, a little attention decides that the flowers are in racemes (422), that the racemes are axillary (424), and this being a land plant we pass on to 426; and since the racemes are opposite and not alternate, the plant can be no other than **VERONICA CHAMÆDRYS.** The description agrees with this determination, since the plant under examination has ovate and serrate leaves and bright blue flowers.

Whilst the arrangement of the Tables is frequently arbitrary, and applicable only to the particular set of plants included in this work, the characters of each Natural Order have been given at some length, and are those of the British plants of the Order considered as a whole.

It is hoped that most plants may be easily identified with a little patience. The great point is to make sure that the question raised at each step is thoroughly understood; nothing must be left to guess-work. Oliver's *Lessons in Elementary Botany* may be consulted for explanation of the botanical terms employed in this work, and for greater convenience a glossary is added at the end of the book.

In some cases the beginner must be satisfied with knowing the Natural Order to which his plant belongs. The classification

of such Natural Orders as Umbelliferæ and Compositæ can never be made easy.

The time of flowering is indicated immediately after the name of each plant. Thus 6-10 means that the plant flowers from June to October.

In the former edition of this book, compiled for the use of the Botanical Classes of the Giggleswick School, all plants which grow within a few miles of that centre were included whether rare or common; but the book having been adopted by schools elsewhere, the author was urged to enlarge the list of plants included in the work, so as to make it as useful for schools in other parts of the country as it has been found to be at Giggleswick. This has been done in the present edition. The names of all plants considered 'common' are printed in capitals, and the work includes all (or nearly all) the plants marked with a higher topographical number than 50 in the eighth edition (1886) of the 'London Catalogue.' The names of some few plants which appear not to be indigenous are printed in *thin* type. In addition to the 'common' plants, the rarer plants growing within reach of certain schools have been included, and I beg to express my acknowledgments to those gentlemen who have furnished me with lists of such plants. The names of these plants are printed in small type, and the schools near which they grow are noted by the use of the following abbreviations:—

B. Berkhampsted.	Nt. Newton Abbot.
F. Felsted.	R. Radley.
G. Giggleswick.	Rg. Rugby.
H. Haileybury.	S. Sedbergh.
L. Lancing.	T. Taunton.
M. Marlborough.	Tb. Tonbridge.
N. Newcastle-under-Lyne.	W. Winchester.
	Wl. Wellington.

For the use of the critical botanist the consecutive numbers of the 'London Catalogue' (8th ed.) have been given (*under* the name), and also the topographical numbers (*after* the name). These latter numbers form 'a scale of rarity or frequency in relation to Britain as a whole. They express the number of counties in which the species has been reported to occur. By subdividing the larger counties into two or more vice-counties their number is increased to 112.'

Thus **Myosurus minimus** (43) . . . . [T. W. Wl.
(11)

means that this plant is numbered 11 in the 'Catalogue,' that it grows in 43 out of 112 counties or vice-counties, and that (of the Schools mentioned) it is found within reach of Taunton, Winchester, and Wellington.

Again, **CARDAMINE HIRSUTA** (106)
(93-94)

means that this name here includes the *two* plants marked 93 and 94, viz., Cardamine hirsuta of Linnæus, and Cardamine flexuosa of Withering, and that it is so common a plant that it occurs in 106 out of 112 topographical divisions.

GIGGLESWICK.

Synopsis of the Natural Orders.

Class I.—DICOTYLEDONS.

Stem, when perennial, with pith, rings of wood and bark. Leaves usually net-veined. Parts of flower arranged in a quaternary ($\frac{4}{\sim}$) or quinary ($\frac{5}{\sim}$) manner. Embryo with two seed-lobes or *cotyledons*.

A—Polypetalæ

(Flowers with both calyx and corolla, and petals not united).

I. Sub-Class.—*THALAMIFLORÆ, stamens inserted on the receptacle (hypogynous) free from the calyx, ovary superior.*

* Pistil apocarpous, of one or more carpels.

1. **Ranunculaceæ.**
   (Ranunculus Family). Herbs. Stamens many (∞). Petals many (∞).
2. **Berberidaceæ.**
   (Barberry Family). Shrubs. Stamens definite.
   ** Pistil syncarpous.
   † Ovules parietal.
3. **Nymphæaceæ.**
   (Water-lily Family). Aquatic plants. Petals and stamens ∞.
4. **Papaveraceæ.**
   (Poppy Family). Herbs with milky juice, flowers regular. Sepals 2, deciduous. Petals 4. Stamens ∞.
5. **Fumariaceæ.**
   (Fumitory Family). Herbs with irregular small flowers. Stamens 6. with united filaments (diadelphous).
6. **Cruciferæ.**
   (Crucifer Family). Herbs with regular flowers. Petals 4. Stamens 6 (tetradynamous).

7. **Resedaceæ.**

(Mignonette Family). Herbs with small irregular flowers. Stamens ∞.

8. **Cistaceæ.**

(Rock-rose Family). Shrubby herbs with regular flowers. Stamens ∞. Petals 5 fugacious. Stigmas 3.

9. **Violaceæ.**

(Violet Family). Herbs with irregular flowers. Stamens 5. Style 1.

†† Placenta free-central.

11. **Caryophyllaceæ.**

(Pink Family). Herbs with regular flowers. Sepals 4 or 5. Stamens 8 or 10. Styles 2—5. Leaves opposite, nodes swollen.

12. **Paronychiaceæ.**

(Knawel Family). Small tufted herbs with minute regular flowers. Sepals 4—5. Stamens 1—5. Style 1.

††† Pistil 2- or more celled, placentas axile.

10. **Polygalaceæ.**

(Milkwort Family). Herbs with irregular flowers. Stamens 8, monadelphous.

13. **Linaceæ.**

(Flax Family). Herbs with regular flowers. Sepals, petals, and stamens usually 4—5. Capsule many-celled.

14. **Malvaceæ.**

(Mallow Family). Herbs with regular flowers. Stamens ∞, monadelphous.

15. **Tiliaceæ.**

(Lime Family). Trees with regular flowers. Stamens ∞. Sepals and petals 5.

16. **Hypericaceæ.**

(St. John's Wort Family). Shrubs or herbs with regular flowers. Stamens ∞, polyadelphous.

17. **Aceraceæ.**

(Maple Family). Trees with regular greenish flowers. Sepals and petals 5. Stamens 8.

18. **Geraniaceæ.**

(Geranium Family). Herbs. Sepals and petals 3—5. Stamens definite. Fruit beaked of 5 carpels.

19. **Oxalidaceæ.**

(Shamrock Family). Similar to Geraniaceæ, but the fruit is not beaked.

64. **Empetraceæ.**
(Crowberry Family). Heath-like evergreen shrubs with regular dicœcious flowers. Sepals, petals, and stamens 3. Ovary 3—9-celled.

II. SUB-CLASS.—*CALYCIFLORÆ. Stamens inserted on the calyx or disk (perigynous or epigynous).*

* Ovary superior, stamens perigynous.

20. **Celastraceæ.**
(Spindle-tree Family). Shrubs with small regular flowers. Sepals, petals, and stamens 4—5. Disk large and fleshy, leaves opposite.

21. **Rhamnaceæ.**
(Buckthorn Family). Shrubs with small regular flowers. Sepals, petals, and stamens 4—5. Disk fleshy, leaves alternate.

22. **Leguminosæ.**
(Pea Family). Herbs or shrubs with irregular flowers. Stamens 10, filaments united. Carpel solitary.

23. **Rosaceæ.**
(Rose Family). Herbs or shrubs with regular flowers. Stamens ∞. Carpels distinct.

30. **Crassulaceæ.**
(Stonecrop Family). Succulent herbs with regular flowers. Carpels nearly separate.

31. **Saxifragaceæ.**
(Saxifrage Family). Herbs with regular flowers. Sepals and petals 4—5. Stamens 5, 8, or 10.

32. **Droseraceæ.**
(Sundew Family). Herbs with glandular leaves. Flowers regular, Sepals and petals 5.

26. **Lythraceæ.**
(Loosestrife Family). Herbs with opposite or whorled leaves and regular showy flowers. Sepals and petals 3—6.

** Ovary inferior, stamens epigynous.

24. **Onagraceæ.**
(Willow herb Family). Herbs with regular, often showy, flowers. Sepals and petals 2—4. Stamens 2, 4, or 8.

25. **Haloragaceæ.**
(Mare's-tail Family). Aquatic plants with minute flowers.

27. **Cucurbitaceæ.**
(Gourd Family). Climbing plants with small dicœcious, regular flowers.

28. **Portulacaceæ.**
(Purslane Family). Herbs with small regular flowers. Sepals 2. Stamens 3 or more. Style 1.

29. **Grossulariaceæ.**

(Gooseberry Family). Shrubs with regular inconspicuous flowers. Ovary 1-celled. Fruit a berry.

33. **Araliaceæ.**

(Ivy Family). Shrubs or trees. Flowers of Umbelliferæ, but carpels 5, and fruit a berry.

34. **Umbelliferæ.**

(Parsley Family). Herbs with small regular flowers in umbels. Sepals, petals, and stamens 5. Styles 2. Fruit of 2 separable dry carpels.

35. **Cornaceæ.**

(Dogwood Family). Shrubs or trees with opposite leaves and small regular flowers. Ovary 2-celled. Style simple.

B—Gamopetalæ

(Flowers with both calyx and corolla; petals united).

SUB-CLASS.—*COROLLIFLORÆ.*

1. *Ovary inferior.*

* Stamens epipetalous.

36. **Caprifoliaceæ.**

(Honeysuckle Family). Shrubs with opposite leaves. Ovary 3—5-celled.

37. **Rubiaceæ.**

(Bed-straw Family). Herbs with whorled leaves. Flowers minute. Ovary 2-celled.

38. **Valerianaceæ.**

(Valerian Family). Herbs with opposite leaves, and small irregular flowers.

39. **Dipsaceæ.**

(Teasel Family). Herbs with numerous small irregular flowers in involucrate heads. Stamens 4 separate.

40. **Compositæ.**

(Composite Family). Herbs with numerous small irregular flowers in involucrate heads. Stamens 5. Anthers united.

** Stamens epigynous.

41. **Campanulaceæ.**

(Bluebell Family). Herbs with milky juice and showy flowers. Stamens 5. Ovary 2—8-celled.

42. **Ericaceæ. Tribe Vaccinieæ.**

(Bilberry Family). Shrubs with regular flowers. Stamens 8 or 10. Ovary 4—5-celled.

2. Ovary superior—Stamens epipetalous.

* Corolla regular.

42. Ericaceæ. Tribe Ericeæ.

(Heath Family). Shrubs. Stamens twice as many as lobes of corolla.

44. Oleaceæ.

(Lilac Family). Trees or shrubs with opposite exstipulate leaves. Sepals and petals 4. Stamens 2. Ovary 2-lobed.

45. Apocynaceæ.

(Periwinkle Family). Shrubs with opposite entire leaves. Carpels 2 separate. Styles united.

46. Gentianaceæ.

(Gentian Family). Herbs with entire opposite leaves. Ovary 1-celled, placentation parietal.

47. Polemoniaceæ.

Herbs with pinnate leaves and showy flowers. Ovary 3-celled.

43. Aquifoliaceæ.

(Holly Family). Shrubs with evergreen leaves with small regular flowers. Sepals, petals, and stamens 4—5. Ovary 3—5-celled.

48. Convolvulaceæ.

(Convolvulus Family). Herbs with alternate simple leaves. Sepals, petals, and stamens 5. Ovary 2-celled.

54. Boraginaceæ.

(Borage Family). Herbs with rough alternate entire leaves and showy flowers. Sepals, petals, and stamens 5. Fruit of 4 nutlets.

49. Solanaceæ.

(Potato Family). Herbs. Sepals, petals, and stamens 5. Ovary 2-celled, placentation axile.

58. Plantaginaceæ.

(Plantain Family). Herbs with radical or alternate leaves and inconspicuous flowers. Sepals, petals, and stamens 4, anthers versatile.

56. Primulaceæ.

(Primrose Family). Herbs. Sepals, petals, and stamens 5. Ovary 1-celled, placentation free-central.

57. Plumbaginaceæ.

(Thrift Family). Seaside plants. Sepals, petals, and stamens 5.

** Corolla irregular.

55. Lentibulariaceæ.

(Butterwort Family). Marsh plants. Corolla 2-lipped. Stamens 2.

50. Scrophulariaceæ.

(Foxglove Family). Herbs with showy flowers. Corolla often 2-lipped. Stamens 4 didynamous. Ovary 2-celled, placentation axile.

51. **Orobanchaceæ.**

(Broom-rape Family). Leafless parasites. Stamens 4, didynamous.

53. **Labiatæ.**

(Dead-nettle Family). Herbs with square stems and opposite leaves. Corolla usually 2-lipped. Stamens 4 didynamous. Fruit of 4 nutlets.

52. **Verbenaceæ.**

(Vervain Family). Herbs with opposite or whorled leaves. Stamens 4 didynamous. Ovary 4-celled.

C—Apetalæ

(Corolla absent, and often the calyx also).

I. *MONOCHLAMYDEÆ* (*calyx present, corolla absent*).

* Ovary superior.

† Stigmas 2—3.

60. **Polygonaceæ.**

(Buckwheat Family). Herbs with alternate leaves and sheathing stipules. Flowers perfect.

59. **Chenopodiaceæ.**

(Goosefoot Family). Herbs with exstipulate leaves and inconspicuous green perfect flowers.

66. **Urticaceæ.**

(Nettle Family). Herbs with monœcious or dicœcious flowers.

67. **Ulmaceæ.**

(Elm Family). Trees with perfect flowers. Ovary 2-celled.

†† Stigma undivided.

61. **Thymelaceæ.**

(Mezereon Family). Shrubs with entire leaves and sweet-scented flowers.

** Ovary inferior.

62. **Loranthaceæ.**

(Mistletoe Family). Parasitic shrubs with inconspicuous imperfect flowers.

63. **Aristolochiaceæ.**

(Birthwort Family). Herbs or shrubs with alternate exstipulate leaves. Stamens 6 or 12. Ovary 4—6-celled.

65. **Euphorbiaceæ.**

(Spurge Family). Herbs with milky juice. Ovary 2—3-celled.

II. *ACHLAMYDEÆ* (*calyx and corolla absent*).

70. **Salicaceæ.**

(Willow Family). Trees with alternate stipulate leaves and dicœcious flowers in catkins.

68. **Cupuliferæ.**

(Beech Family). Trees or shrubs with alternate stipulate leaves and moncœcious or dicœcious flowers. Staminate flowers in catkins. Fruit with a cuplike involucre.

69. **Betulaceæ.**

(Birch Family). Trees or shrubs with alternate stipulate leaves and moncœcious flowers. Fruit without involucre.

71. **Myricaceæ.**

(Sweetgale Family). Fragrant shrub with alternate exstipulate leaves.

72. **Coniferæ.**

(Pine Family). Trees with naked ovules.

Class II.—MONOCOTYLEDONS.

Stem, with isolated vascular bundles, leaves usually parallel-veined. Parts of flowers arranged in a ternary (3) manner. Embryo with one seed-lobe, or *Cotyledon*.

A—Petaloideæ

(Perianth petaloid—usually brightly coloured).

* Perianth superior.

80. **Hydrocharidaceæ.**

(Frogbit Family). Water plants. Flowers usually conspicuous.

73. **Orchidaceæ.**

(Orchis Family). Perianth irregular. Stamens and style in one. Ovary 1-celled.

74. **Iridaceæ.**

(Iris Family). Perianth regular. Stamens 3. Ovary 3-celled.

75. **Amaryllidaceæ.**

(Snowdrop Family). Perianth regular. Stamens 6. Ovary 3-celled.

78. **Dioscoraceæ.**

(Bryony Family). Climbing shrubs with moncœcious inconspicuous flowers. Leaves with netted veins.

** Perianth inferior or wanting.

† Carpels free.

81. **Alismaceæ.**

(Flowering-rush Family). Marsh or water herbs. Flowers perfect. Stamens 6. Carpels many.

82. **Naiadaceæ.**
(Pond-weed Family). Marsh or water plants with inconspicuous green flowers.

†† Carpels united.

76. **Liliaceæ.**
(Lily Family). Herbs with perfect flowers. Stamens 6. Perianth 6-partite. Ovary 3-celled.

77. **Trilliaceæ.**
(Herb-Paris Family). Herbs with perfect flowers. Stamens 6—10. Fruit a berry, leaves netted-veined.

79. **Melanthaceæ.**
(Crocus Family). Herbs with perfect flowers. Stamens 6. Perianth petaloid, 6-partite. Fruit a 3-valved capsule.

86. **Juncaceæ.**
(Rush Family). Rushes with small brown flowers. Stamens 6. Ovary of 3 carpels 1—3-celled.

84. **Araceæ.**
(Arum Family). Flowers sessile on a spadix enclosed in a spathe. Fruit a berry.

83. **Lemnaceæ.**
(Duckweed Family). Floating fronds, without stems. Flowers minute on the fronds.

85. **Typhaceæ.**
(Bulrush Family). Erect marsh or water plants. Flowers monœcious in spikes.

B—Glumaceæ.

87. **Cyperaceæ.**
(Sedge Family). Stems solid usually triangular grass-like, leaves very slender, with entire sheaths.

88. **Gramineæ.**
(Grass Family). Stems solid round, leaves with sheaths split to the base.

Class III.—ACOTYLEDONS.

Flowerless plants. Reproduction by spores.

89. **Filices.**
(Fern Family). Spores of one kind minute in spore cases on the frond—rarely in spikes or panicles.

90. **Lycopodiaceæ.**
(Clubmoss Family). Creeping moss-like plants, with spores of two kinds.

91. **Equisetaceæ.**
(Horsetail Family). Stems erect hollow jointed, with whorled branches. Spores of one kind.

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Thalamifloræ.

Calyx and corolla present. Stamens hypogynous, i.e. inserted upon the receptacle (thalamus)—or upon a disk which is hypogynous. Corolla polypetalous.

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Corolliflorae.

Corolla gamopetalous, present as well as the calyx. Stamens usually epipetalous, i.e. inserted upon the corolla.

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96 Leaves pinnate, ... [**Rosaceæ** 52]
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97 Herbs, ... **Chenopodiaceæ** 123
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102 Fruit dicoccous, ... **Euphorbiaceæ** 128

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103 Fruit not in cones, style and stigma present, 105
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106 Flowers dicœcious, ... **Salicaceæ** 133
106 Flowers moncœcious, 107
107 Fruit a nut enclosed in a cup-like involucre, ... **Cupuliferæ** 131
107 Fruit small, not enclosed in a cup, . **Betulaceæ** 132

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Monocotyledons possessing a coloured *perianth or none.*

Ovary inferior, 108
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108 Leaves with parallel veins, 110		
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110 Leaves aerial, 111		
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119 Style 1, ...	**Liliaceæ**	141
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Glumiferæ.

Monocotyledons with a glumaceous perianth.

Leaves very slender within entire sheaths—stems solid,	**Cyperaceæ**	151
Leaves with split sheaths—stems hollow, . . .	**Gramineæ**	160

Class I.—DICOTYLEDONS.

DIVISION I.—POLYPETALÆ.

ORDER 1.—Ranunculaceæ.

Calyx polysepalous inferior. Sepals usually five and deciduous. Corolla polypetalous hypogynous. Petals 3—15 sometimes wanting. Stamens many hypogynous. Pistil apocarpous, carpels usually numerous. Fruit usually of many one-seeded achenes or many-seeded follicles. *Plants usually poisonous.*

Flowers irregular, ... Aconitum XI.
Flowers regular, 120
120 Corolla absent, 121
120 Corolla present, 124
121 A climbing shrub, ... Clematis I.
121 Herbs 122
122 Involucre present, ... Anemone III.
122 Involucre absent, 123
123 Flowers in panicles or racemes, ... Thalictrum II.
123 Flowers solitary, ... Caltha V.
124 Flowers green, ... Helleborus IX.
124 Flowers scarlet, ... Adonis VI.
124 Flowers yellow or white, 125
124 Flowers purple, ... Aquilegia X.
125 Fruit of (1-seeded) achenes, 126
125 Fruit of (many-seeded) follicles 127
125 Fruit a berry, ... Actæa XIII.
126 Fruit a long spike, ... Myosurus VII.
126 Fruit a globose head, ... Ranunculus IV.
127 Petals 2-lipped, ... Eranthis XII.
127 Petals entire, ... Trollius VIII.

I.—*CLEMATIS.*

Clem'atis Vital'ba (47). Traveller's Joy. 6—9. Stem woody climbing, (1) leaves opposite exstipulate compound, sepals 4—6 white, petals 0, achenes with long feathery awns. [T. Tb. L. F.

II.—*THALICTRUM.*

Leaves compound stipulate, sepals 4—5, petals 0, achenes without awns.

THALIC'TRUM MI'NUS (65). Lesser Meadow Rue. 6—7. Stem
(3) 1—4 in. striate, leaves tripinnate, panicle lax, flowers small greenish yellow, drooping. *Dry places.*

THALIC'TRUM FLAV'UM (65). Common Meadow Rue. 6—7.
(5) Stem 2—4 ft. furrowed, leaves bipinnate, panicle dense, flowers small yellow erect. *Wet places.*

III.—*ANEMONE.*

Leaves radical, sepals 6 petaloid, petals 0, flowers solitary, the scape bearing a three-leaved involucre.

Anemo'ne Pulsatil'la (18). Pasque-flower. 5—6. Sepals purple silky
(6) outside, bracts sessile deeply cut into linear segments, radical leaves petiolate tri-pinnatifid, carpels ending in feathery awns. [R.

ANEMO'NE NEMORO'SA (105). Wood anemone. 3—6. Sepals
(7) white, radical leaves ternate petiolate, involucral bracts similar to radical leaves, carpels without awns. *Woods.*

A. Coronaria, *A. Hepatica*, and several other species are commonly found in gardens.

IV.—*RANUNCULUS.*

Sepals 3—5, petals usually 5, stamens many hypogynous, fruit a head of beaked achenes.

Flowers white, aquatic plants, 128
Flowers yellow, 130

128 Leaves trifid, ... R. aquatilis.
128 Leaves reniform 129

129 Petals not longer than calyx, ... R. hederaceus.
129 Petals twice as long as sepals, ... R. Lenormandi.

130 Leaves entire, 131
130 Leaves divided, 132

131 Leaves cordate, ... R. ficaria.
131 Leaves lanceolate 133

132 Achenes rough, 134
132 Achenes smooth, 136

133 Stem creeping at the base, ... R. flammula.
133 Stem erect, stout, ... R. lingua.

134 Stem erect, ... 135
134 Stem decumbent, ... R. parviflorus.
135 Calyx reflexed, ... R. hirsutus.
135 Calyx spreading, ... R. arvensis.
136 Calyx spreading 137
136 Calyx reflexed 138
137 Peduncles furrowed, ... R. repens.
137 Peduncles not furrowed, 139
138 Flowers small, ... R. sceleratus.
138 Flowers large, ... R. bulbosus.
139 Acrid, ... R. acris.
139 Not acrid, ... R. auricomus.

RANUN'CULUS AQUAT'ILIS (69). Water Crowfoot. 5—8. Float-
(12-20) ing leaves reniform lobed, submerged leaves finely divided. *Ponds.*

RANUN'CULUS HEDERA'CEUS (101). Ivy-leaved Crowfoot.
(22) 5—8. Leaves all alike reniform crenate, crenatures broadest at the base, petals 3-veined scarcely longer than the sepals. *Ponds.*

Ranun'culus Lenormandi (48). Leaves all alike reniform crenate, crenatures
(21) narrowest at the base, petals 5-veined twice as long as the sepals. [W.

RANUN'CULUS FICA'RIA (105). Lesser Celandine. 3—5. Leaves
(36) stalked cordate crenate, root of many tubers. *Among grass under trees.*

RANUN'CULUS ARVEN'SIS (66). 5—7. Stem erect, leaves pale
(34) green glabrous deeply cut into narrow segments, peduncles not furrowed, flowers small pale yellow, sepals spreading, achenes covered with hooked spines. *Cornfields.*

RANUN'CULUS PARVIFLO'RUS (57). 5—8. Stem slender
(33) decumbent, radical leaves hairy orbicular or reniform, cauline leaves 3- or 5-lobed, flowers very small, peduncles furrowed, sepals reflexed, carpels tubercled. *Dry banks.*

RANUN'CULUS HIRSU'TUS (74). Pale hairy Crowfoot. 6—10.
(32) Calyx reflexed hairy, stem upright many-flowered hairy, leaves tripartite, achenes tubercled towards the margin. *Waste places.*

RANUN'CULUS FLAM'MULA (112). Lesser Spearwort. 6—8.
(25) Leaves linear entire, stem 4—12 in. decumbent at the base often rooting many-flowered. *Ditches.*

RANUN'CULUS LIN'GUA (78). Great Spearwort. 7—9. Stem
(27) erect stout 2—3 ft., leaves lanceolate serrate sessile.

RANUN'CULUS RE'PENS (111). Common Buttercup, 5—8. Stem
(30) creeping, calyx spreading, flower stalks furrowed, leaves ternate, leaflets trifid. *Meadows.*

RANUN'CULUS SCELERA'TUS (95). Celery-leaved Crowfoot,
(23) 5—9. Leaves glabrous tripartite, calyx reflexed hairy, flowers small pale yellow, head of achenes oblong. Lower leaves broad and glossy. *Wet ditches.*

RANUN'CULUS BULBO'SUS (97). Common Buttercup. 5—6.
(31) Calyx hairy reflexed, peduncle furrowed, leaves ternate, leaflets trifid, root bulbous. *Meadows.*

RANUN'CULUS A'CRIS (111). Common Buttercup. 6—7. Calyx
(29) spreading, peduncle rounded, leaves tripartite, segments trifid. *Meadows.*

RANUN'CULUS AURI'COMUS (85). Wood Crowfoot, Goldilocks.
(28) 4—5. Leaves glabrous, radical leaves reniform tripartite with long petioles, cauline leaves sessile deeply divided, segments linear. *Woods and copses.*

V.—*CALTHA.*

CAL'THA PALUS'TRIS (111). Marsh Marigold. 3—6. Sepals
(37) 5 petaloid, petals 0, stem creeping, leaves cordate glabrous dark green, stipules large, flowers large golden-yellow, fruit of follicles. *Wet ditches.*

VI.—*ADONIS.*

ADO'NIS AUTUMNA'LIS. Pheasant's-eye. 5—7. Stem erect 8—12
(10) in., leaves much divided, petals scarlet with a dark spot at the base, carpels numerous forming a head at first oblong afterwards lengthening. [T. W.

A. autumnalis and *A. vernalis* are common in gardens.

VII.—*MYOSURUS.*

Myosu'rus min'imus (43). Mouse-tail. 6—8. Scapes erect 2—6 in.,
(11) leaves radical linear, flowers minute yellowish green in a spike, sepals 5 with a small spur, petals 5 ligulate, fruit a long spike of densely packed achenes. [T. W. Wl.

VIII.—*TROLLIUS.*

TROL'LIUS EUROPÆ'US (61). Globe-flower. 6—8. Sepals 5—15,
(39) large yellow petaloid, petals 5—15 small linear, stamens many, fruit of follicles, leaves 5-partite, flowers globular. *Moist woods.*

IX.—*HELLEBORUS.*

Sepals 5 persistent, petals 8—10 minute, stamens many, follicles 3—10 sessile, leaves digitate. *Very poisonous.*

Helleb'orus vir'idis (28). Green Hellebore. 3—4. Stem few-flowered,
(40) sepals large spreading yellowish green. [G. (*Wharfe*) M. T. W. Tb. L.

Helleb'orus fœ'tidus (13). Stinking Hellebore. 2—4. Stem many-
(41) flowered, sepals erect tipped with purple. [G. (*Feizor*), L. F.

H. niger is the 'Christmas Rose' of Gardens.

X.—*AQUILÉGIA.*

AQUILE'GIA VULGA'RIS (57). Columbine. 5—7. Leaves biter-
(43) nate, sepals 5 petaloid, petals 5 spurred, stamens many, carpels 5, flowers purple. *Woods and thickets. Common in gardens.*

XI.—*ACONITUM.*

Aconi'tum Napel'lus (7). Monkshood. 7—9. Sepals 5 petaloid irregular
(45) the upper hood-like, petals 2 with long claws covered by the hood-like sepal, leaves palmate. *A deadly poison. Common in Gardens. Roots sometimes mistaken for horse-radish.* [G. (*Bolton Woods*).

XII.—*ERANTHIS.*

ERAN'THIS HYEMA'LIS. Winter Aconite. 1—3. Radical leaves
(42) orbicular 3—5-partite, petiole long, scape bearing an involucre of 2 sessile lobed bracts, sepals petaloid yellow deciduous, petals small 2-lipped, fruit of numerous follicles. *Common in Gardens.* [M. L.

XIII.—*ACTÆA.*

Actæ'a spica'ta (5). Baneberry, Herb-Christopher. 5. Sepals deciduous,
(46) petals minute, stamens many, carpel solitary, stigma sessile, leaves triternate, flowers small white in crowded racemes, fruit an oblong berry nearly black. [G. (*Ingleborough, Penyghent, Malham Cove*).

ORDER 2.—Berberidaceæ.

Calyx polysepalous inferior, sepals 3—6 petaloid. Corolla polypetalous hypogynous, petals equal in number to the sepals or double as many. Stamens hypogynous as many as the petals and opposite to them, anthers 2-celled opening by valves. Carpel 1. Style short. Fruit a berry.

BER'BERIS VULGA'RIS (77). Common Barberry. 5—6. Sepals 6
(48) coloured deciduous, stamens 6, flowers yellow in pendulous racemes, stamens sensitive when touched, berries orange, spines 3-forked, leaves obovate serrate. *Plantations.*

ORDER 3.—Nymphæaceæ.

Sepals petals and stamens numerous, passing into each other. Pistil superior, carpels numerous embedded into the receptacle or combined together to form a many-celled many-seeded ovary. Stigma rayed.

I.—*NYMPHÆA.*

NYMPHÆ'A AL'BA (82). White Water-Lily. 7. Sepals 4, petals (52) numerous large, stamens united to the sides of the ovary, leaves cordate entire. *Stagnant water.*

II.—*NUPHAR.*

NU'PHAR LU'TEUM (89). Yellow Water-Lily. 7. Sepals 5, petals (50) numerous small, stamens separate from the ovary, leaves cordate split at the base. *Stagnant water.*

ORDER 4.—Papaveraceæ.

Calyx polysepalous inferior, sepals 2 deciduous. Corolla polypetalous hypogynous, petals 4. Stamens many hypogynous. Pistil syncarpous, ovary 1-celled. Placentation parietal. Stigma rayed. *Poisonous or narcotic.*

Fruit linear, 128*
Fruit oblong, 129*
128* Fruit 1-celled, flowers small, . . . Chelidonium I.
128* Fruit 2 celled, flowers large, . . . Glaucium II.
129* Stigma sessile, ... Papaver III.
129* Style short, ... Meconopsis IV.

I.—*CHELIDONIUM.*

CHELIDO'NIUM MA'JUS (96). Celandine. 5—8. Stigma 2-lobed, (62) pod linear 1½ in. long separating into valves from the bottom upwards, flowers yellow in umbels, leaves pinnate, juice yellow. *Waste places.*

II.—*GLAUCIUM.*

Glau'cium lu'teum (50). Yellow Horned Poppy. 6—10. Pods linear 6—8 (59) inches long, stigma 2-lobed sessile, leaves amplexicaul sinuate. [T. Tb. L.

III.—*PAPAVER.*

Stigma sessile radiating, capsule opening by pores under the lobes of the stigma.

Capsule glabrous, 130*
Capsule rough, 131*
130* Capsule oblong, ... P. dubium.
130* Capsule globular, ... P. Rhœas.
131* Capsule oblong, ... P. Argemone.
131* Capsule globular, ... P. hybridum.

PAPA'VER RHŒ'AS (102). Common red Poppy. 6—8. Hairs of
(54) peduncle spreading, capsule globose, leaves pinnatifid sessile, flowers large scarlet. *Cornfields.*

PAPA'VER DU'BIUM (100). Long smooth-headed Poppy. 5—7.
(55) Hairs of peduncle adpressed, capsule oblong, leaves pinnatifid sessile, flowers red. *Waste places.*

PAPA'VER ARGEMO'NE (84). 5—7. Leaves bipinnatifid, capsule
(56) clavate hispid, flowers small pale red. *Waste dry places.*

Papa'ver hyb'ridum (39). 5—7. Leaves bi- or tri-pinnatifid, capsule globu-
(39) lar covered with bristles, flowers large, petals purplish red with a dark spot. [W. L.

IV.—*MECONOPSIS.*

Meconop'sis Cam'brica (14). Welsh Poppy. 6. Style present, rays of
(58) stigma few, leaves stalked pinnate, flowers large yellow.
[G. (*Stackhouse, Feizor, Wethercote*), S.

ORDER 5.—Fumariaceæ.

Calyx polysepalous inferior, sepals 2 deciduous or none. Petals 4, 2 outer larger, one or both spurred at the base, 2 inner erect coherent at the tips. Stamens 6 diadelphous hypogynous. Style filiform, stigma lobed. Fruit indehiscent or a 2-valved pod.

Fruit roundish 1-seeded. Flowers purple, ... Fumaria I.
Fruit elongated many-seeded. Flowers yellowish white, . Corydalis II.

I.—*FUMARIA.*

Petals 4 erect, 2 outer petals dissimilar—one with a spur at the base, 2 inner petals narrow cohering by their tips, stamens 6 in 2 bundles opposite the outer petals, fruit a 1-seeded nut.

Fum'aria capreola'ta (47). Rampant Fumitory. 5—9. Stem climbing,
(66-68) sepals as broad as the corolla, leaves bipinnate, leaflets flat, petioles twisted. [W. Tb.

FUMA'RIA OFFICIN'ALIS (105). Common Fumitory. 5—9. Stem
(70) erect, sepals half as broad as the corolla, leaves bipinnate, leaflets narrow. *Dry fields and roadsides.*

Fuma'ria parviflo'ra (21). 6—9. Diffuse; leaf-segments narrow, flowers
(71-72) small white rarely red, sepals minute. [W.

II.—*CORYD'ALIS.*

Stem diffuse or climbing. Floral characters of *Fumaria*, but ovules numerous and fruit a narrow pod opening in two valves.

Flowers white, ... C. claviculata.
Flowers yellow, ... C. lutea.
Flowers purple, ... C. solida.

CORYD'ALIS CLAVIC'ULATA (83). White-climbing Corydalis.
(65) 6—7. Stem much branched climbing, leaves pinnate, petioles terminating in tendrils, flowers small white. *Copses and banks.*

CORYD'ALIS LU'TEA. Yellow Corydalis. 5—8. Stems many angular
(64) erect, leaves bipinnate leaflets lobed, flowers large yellow. *An escape from cultivation.*

CORYD'ALIS SOL'IDA. 4—5. Glaucous, stem simple stout, leaves bi-
(63) or tri-pinnate, leaflets broad, flowers large purplish in a terminal raceme. [M.

The garden flower *Dielytra* belongs to this Order.

ORDER 6.—Cruciferæ.

Calyx polysepalous, sepals 4. Corolla polypetalous hypogynous, petals 4 cruciform. Stamens tetradynamous hypogynous. Pistil superior syncarpous of 2 carpels. Stigmas 2. Fruit a long or short 2-valved capsule. Placentas parietal meeting in the middle and forming a false dissepiment. Seeds small. Albumen none. Colytedons folded with their edges applied to the radicle (*accumbent* =o), or with their flat sides to the radicle (*incumbent* ‖ o), or so as to embrace the radicle (*conduplicate* <<o).

Fruit an indehiscent flattened 1-seeded pod, . . . Isatis XXII.
Fruit 2-valved, ... 132*
132*Fruit a pouch, ... 133*
132*Fruit a pod (at least twice as long as broad), 134*
133*Pouch laterally compressed, the dissepiment in the shortest diameter, ... 135*
133*Pouch not compressed, or with the dissepiment in the longest diameter, ... 136*
134*Pods beaked or jointed, 142
134*Pods not beaked or jointed, 144
135*Pouch triangular, ... Capsella III.
135*Pouch rounded, 137*
136*Pouch globose, ... Cochlearia VII.
136*Pouch compressed, ... Draba VIII.
137*Pouch many-seeded, ... Thlaspi I.
137*Pouch few-seeded, 138*
138*Each cell containing 2 seeds, 139*
138*Each cell containing 1 seed, 140
139*Pod orbicular, winged, ... Teesdalia XIX.
139*Pod oval, not winged, ... Hutchinsea IV.
140 Erect, 141
140 Trailing, ... Senebiera XX.

141 Petals unequal, ... Iberis V.
141 Petals equal, ... Lepidium VI.
142 Pods jointed, 143
142 Pods beaked, 145
143 Pods many-jointed, ... Raphanus XVIII.
143 Pods 2-jointed, ... Cakile XXI.
144 Calyx equal at the base, 146
144 Lateral sepals saccate, 147
145 Calyx erect, ... Brassica XVI.
145 Calyx spreading, ... Sinapis XVII.
146 Pod short, ... Nasturtium XII.
146 Pod long, 148
147 Pod compressed, ... Cheiranthus II.
147 Pod quadrangular, ... Hesperis XV.
148 Pod compressed, 149
148 Pod nearly cylindrical, 150
149 Valves veinless, ... Cardamine IX.
149 Valves with prominent veins, ... Arabis X.
150 Cotyledons accumbent, ... Barbarea XI.
150 Cotyledons incumbent, 151
151 Cauline leaves numerous entire, . . . Erysimum XIV.
151 Leaves mostly radical or else pinnatifid, Sisymbrium XIII.

I.—*THLASPI.*

Pouch compressed with the dissepiment in the shortest diameter, valves winged at the back, leaves entire, radical leaves in a rosette, cauline leaves hastate.

Style shorter than the notch, 152
Style longer than the notch, ... T. alpestre.
152 Pod large orbicular, ... T. arvense.
152 Pod small obcordate, ... T. perfoliatum.

Thlas'pi perfolia'tum (3). Perfoliate Penny-Cress. 4—5. Pod obcordate, (146) style very short, cauline leaves sagitto-cordate amplexicaul. [G. (*Stackhouse*).

Thlas'pi alpes'tre (14). Alpine Penny-Cress. 6—8. Pod obcordate, notch (147*b*) shallow, style longer than the notch in the pouch, radical leaves obovate, cauline leaves sagittate. [G. (*Attermire, Giggleswick Scar, Old Lead-mines between Malham and Settle*).

THLAS'PI ARVEN'SE (79). Mithridate Mustard. 5—7. Radical (145) leaves oblong, cauline leaves sagittate, pod large orbicular deeply notched. *Fields.*

II.—*CHEIRANTHUS.*

CHEIRAN'THUS CHEI'RI. Common Wallflower. 5—6. Calyx erect,
(75) lateral sepals saccate, stigma 2-lobed, stem shrubby branched, leaves lanceolate acute with adpressed bipartite hairs, flowers orange fragrant. *Walls. A garden escape.*

III.—*CAPSELLA.*

CAPSEL'LA BUR'SA-PASTO'RIS (112). Shepherd's Purse. 4—9.
(136) Pouch triangular obcordate, radical leaves pinnatifid. *Waste places everywhere.*

IV.—*HUTCHINSIA.*

Hutchin'sia petræ'a (12). 3—5. Pouch elliptical, valves boat-shaped
(150) keeled but not winged, leaves pinnate (6—9 pairs leaflets). Plant 2—4 inches high. [G. (*Malham Tarn, Ingleton Fells, Malham Cove*).

V.—*IBERIS.*

Ibe'ris ama'ra (14). Candytuft. 7. Pouch orbicular slightly notched and
(148) slightly winged, petals unequal. *An outcast from gardens.* [G.

VI.—*LEPIDIUM.*

Pouch with the cells 1-seeded, petals equal.

Pouch winged at top, 153
Pouch not winged, ... **L. ruderale.**
153 Style short, ... **L. campestre.**
153 Style long, ... **L. Smithii.**

Lepid'ium rudera'le (36). Stem 6—12 in. Much branched, wiry, radical
(140) leaves pinnatifid, cauline leaves entire linear, pod orbicular oblong very slightly winged. [L.

LEPI'DIUM CAMPES'TRE (85). Common Pepper-wort. 5—8. Stem
(142) solitary, 6—18 in., cauline leaves sagittate toothed, style no longer than the notch, pouch broadly ovate with a broad slightly notched wing rough with minute scales, anthers yellow. *Fields and roadsides.*

LEPID'IUM SMITH'II (83). Smooth Field Pepper-wort. 4—8.
(143) Cauline leaves sagittate toothed, style twice as long as the notch, pouch nearly smooth ovate winged, anthers violet. *Fields and roadsides.*

L. sativum is the garden Cress.

VII.—*COCHLEARIA.*

COCHLEA'RIA OFFICINA'LIS (79). Common Scurvy-Grass. 5—8.
(107-108) Stems many, diffuse, 4—10 in. glabrous fleshy, pouch globose, valves with one prominent dorsal nerve, radical leaves cordate or reniform, cauline leaves sessile angled toothed or lobed, flowers small white. *Sea-shores and mountains, and by rivers.*

COCHLEA'RIA ARMORA'CIA. Horse-Radish. 5—6. Stem erect 2—3
(110) ft., radical leaves oblong waved on long petioles, cauline leaves sessile, pod obovate with no dorsal nerve. *Waste places.*

VIII.—*DRABA.*

Pouch oval or oblong, valves slightly convex, seeds many.

DRA'BA VER'NA (99). Common Whitlow-Grass. 3—6. Flowering
(104) stem leafless, radical leaves lanceolate, petals deeply notched, stem 2—5 inches high. *Everywhere on old walls.*

Dra'ba inca'na (26). Twisted-podded Whitlow-Grass. 6—7. Stem leafy,
(101) 6—14 in., cauline leaves lanceolate toothed pubescent, petals entire, pods twisted. [G. (*Attermire*).

Dra'ba mura'lis (9). Speedwell-leaved Whitlow-Grass. 4—5. Stem leafy,
(100) cauline leaves ovate toothed hairy, petals entire, pods flat.
[G. (*Malham*).

IX.—*CARDAMINE.*

Pod linear, valves flat separating elastically, leaves pinnate.

Leaflets of stem-leaves toothed, 154
Leaflets of stem-leaves entire, ... C. pratensis.
154 Flowers large, ... C. amara.
154 Flowers small, 155
155 Leaflets roundish, ... C. hirsuta.
155 Leaflets narrow, ... C. impatiens.

CARDAMI'NE PRATEN'SIS (111). Cuckoo-flower. 4—6. Radical
(92) leaflets roundish dentate, cauline ones lanceolate nearly entire, flowers lilac. *Meadows.*

CARDAMI'NE AMA'RA (71). Large-flowered Bitter-Cress. 4—6.
(91) Radical leaflets roundish, cauline ones angular, flowers white, anthers purple. *River-sides.*

CARDAMI'NE HIRSU'TA (106). Hairy Bitter-Cress. 3—8. Radical
(93-4) leaflets broad, cauline ones narrower, petals small white, anthers yellow. Often destitute of hairs. *Everywhere.*

Cardami'ne impa'tiens (26). Narrow-leaved Bitter-Cress. 5—8. Petioles
(95) with ciliated stipules, petals small or none.
[G. (*Giggleswick Scar, Cave Ha' Wood, Attermire Cave*), S.

X.—*ARABIS.*

Radical leaves spathulate, cauline sessile, petals entire, pod linear compressed with prominent veins.

Ar'abis perfolia'ta (38). 5—7. Glabrous 2—3 feet, cauline leaves amplexi-
(90) caul auricled, flowers pale and yellow, pods 2—3 inches long slender crowded in a terminal raceme. [L.

AR'ABIS HIRSU'TA (91). Hairy Rock-Cress. 6—8. Pods 1½—2 in.
(88) slender very numerous crowded in a long raceme, leaves hispid, cauline ones semiamplexicaul, flowers small white.

XI.—*BARBAREA.*

Pod 4-angled, stem angular, leaves pinnatifid, flowers small yellow, seeds in one row, cotyledons accumbent.

BARBARE'A VULGA'RIS (95). Yellow Rocket. 5—8. Radical
(80) leaves lyrate, upper leaves toothed, style distinct, pod short, thicker than the pedicel. *Damp places.*

BARBARE'A PRÆ'COX. Early Winter-Cress. 4—10. Radical leaves
(84) lyrate, upper cauline leaves pinnatifid with narrow segments, style very short, pod long, scarcely thicker than the pedicel. *Roadsides. A garden escape.*

XII.—*NASTURTIUM.*

Pod nearly cylindrical, tapering, valves convex, nerveless, seeds in a double row, calyx spreading.

Flowers white, ... N. officinale.

Flowers yellow, 156

156 Pod ½ in. long, ... N. sylvestre.

156 Pod ¼ in. long, 157

157 Pod curved, ... N. palustre.

157 Pod straight, ... N. amphibium.

NASTUR'TIUM OFFICINA'LE (109). Common Water-Cress. 5—10.
(76) Leaves pinnate, lower leaves large, terminal leaflets large and round, flowers white, petals twice as long as the calyx, pod very slightly curved. *Brooks.*

NASTUR'TIUM SYLVES'TRE (59). Creeping Yellow-Cress. 6—8.
(77) Root creeping, petals yellow twice as long as the sepals, leaves pinnate, leaflets lanceolate cut, pod straight.

NASTUR'TIUM PALUS'TRE (79). Marsh Yellow-Cress. 6—10.
(78) Root fibrous, petals not longer than the sepals, leaves pinnatifid, flowers yellow, pod curved.

Nastur'tium amphib'ium (44). 6—9. Leaves entire, toothed or pinnatifid,
(79) petals twice as long as the sepals, flowers yellow, pod ovoid straight.
[M. Rg. N. Tb. L.

XIII.—*SISYMBRIUM.*

Calyx equal at the base, slightly spreading, pod linear, seeds in one row, cotyledons incumbent.

Flowers yellow, 158

Flowers white, ... S. Thalianum.

158 Leaves runcinate, ... S. officinale.

158 Leaves bipinnatifid. . . . . S. Sophia.

SISYM'BRIUM OFFICINA'LE (107). Common Hedge Mustard.
(113) 6—7. Stem 1—2 ft. Pods subulate hairy, close-pressed to the stalk, leaves runcinate hairy, flowers small pale yellow. *Waste places.*

SISYM'BRIUM SOPHI'A (64). Flix-weed. 6—8. Stem 1—3 ft.
(115) Leaves bipinnatifid slightly hairy, pods slender erect, pedicels spreading. *Waste places.*

SISYM'BRIUM THALIA'NUM (93). Thale-Cress. 5—7. Stem
(112) 6—10 inches high, leaves few, nearly all radical. *Dry places.*

XIV.—*ERYSIMUM.*

Calyx equal at the base, flowers yellow or white, pods long on spreading pedicels 4-angled, valves with a prominent midrib.

ERYS'IMUM ALLIA'RIA (94). Garlic-Mustard, Jack-by-the-Hedge.
(118) 5—6. Leaves large much veined cordate dentate, flowers white corymbose, plant 2 or 3 feet high smelling strongly of garlic. *Banks.*

Erys'imum cheiranthoi'des (37). Treacle mustard. 6—8. Stem 1—2
(119) ft., erect rigid leafy, leaves pale green entire or slightly toothed lanceolate, flowers small pale yellow. [N. F.

XV.—*HESPERIS.*

HES'PERIS MATRONA'LIS. Dame's Violet. 5—7. Pod 4-sided, stigma
(111) sessile lobed, calyx erect, leaves ovate lanceolate toothed, stem erect, flowers lilac, powerfully fragrant in the evening. [G. (*Gargrave, Settle*).

XVI.—*BRASSICA.*

Pods beaked, calyx erect, seeds in one row globose.

Upper leaves entire, ... B. oleracea.

All leaves pinnatifid, 159

159 1—2 ft. high, ... B. tenuifolia.

159 6 in. high, ... B. muralis.

BRAS'SICA OLERA'CEA (11). Cabbage. 5—8. Leaves glaucous
(123) fleshy waved glabrous lobed, flowers yellow, root fibrous. *Common in cultivation.*

Brassica Napus is the Rape or Cole-seed, and *Brassica Rapa* the Turnip of cultivation.

Bras'sica tenuifo'lia (46). Rocket. 6—9. Stem glabrous erect 1—2 ft.,
(134) bushy, leaves pinnatifid, flowers rather large lemon-yellow, pods in a loose raceme slender spreading, beak very short. [Tb.

Bras'sica mura'lis (46). Rocket. 8—9. Stem 6—8 in. slender, leaves
(135) pinnatifid mostly radical, flowers small yellow, pods slender.
[Wl. M. F.

XVII.—*SINAPIS.*

Pod nearly cylindrical tapering, seeds globose in a single row, calyx spreading, flowers yellow.

SINA'PIS ARVEN'SIS (111). Charlock. 5—8. Stem and leaves
(131) bristly, pods with many angles rugged and knotted spreading longer than the awl-shaped beak, leaves lyrate. *Cornfields.*

SINA'PIS AL'BA (80). White Mustard. 6—7. Pods spreading
(132) knotted shorter than the flat two-edged beak, leaves lyrate. *Cornfields.*

SINA'PIS NI'GRA (62). Common Mustard. 6—9. Pods quadran-
(129) gular adpressed, beak subulate short, lower leaves lyrate, cauline leaves entire linear-lanceolate. *Cornfields.*

XVIII.—*RAPHANUS.*

RAPH'ANUS RAPHANIS'TRUM (105). Wild Radish or Jointed
(154) Charlock. 6—9. Stem 1—2 ft., radical leaves lyrate rough, fruit without valves or dissepiment jointed, flowers yellow veined with purple. *Cornfields.*

R. sativus is the cultivated Radish.

XIX.—*TEESDALIA.*

Leaves chiefly radical, forming a rosette, flowers minute white, pods orbicular or obovate, valves slightly winged, on horizontal pedicels, cotyledons accumbent.

TEESDA'LIA NUDICAU'LIS (70). 4—6. Stems 2—6 in., slender,
(149) leaves pinnatifid, two outer petals larger than the others, pods on slender spreading pedicels. *Sandy and gravelly places.*

XX.—*SENEBIERA.*

Prostrate herbs with pinnate leaves, and small white flowers in short racemes, pods small indehiscent, laterally compressed, orbicular wrinkled, 2-seeded, cotyledons incumbent.

SENEBIE'RA CORONO'PUS (81). Wart-Cress. 6—9. Pod scarcely
(138) notched, deeply wrinkled, style subulate.

Senebie'ra did'yma (40). 7—9. Pod slightly wrinkled separating into
(137) two nuts, style minute. [W. Wl.

XXI.—*CAKILE.*

Stem stout fleshy branched, flowers in long racemes, pods indehiscent, of 2 angular 1-celled joints, lower joint persistent-seeded, upper joint compressed 1-seeded deciduous, cotyledons accumbent.

CAKI'LE MARIT'IMA (59). Sea-Rocket. 6—7. Leaves fleshy oblong
(153) lobed, flowers lilac or white. *Sandy and shingly shores.*

XXII.—*ISATIS.*

ISA'TIS TINCTO'RIA. Woad. Stem 1—2 ft. Erect, radical leaves obovate petiolate, cauline leaves sessile sagittate, flowers small yellow numerous in crowded panicles, pod 1-seeded indehiscent obovate or oblong with a broad wing pendulous. [Wl. (*Guildford*).

ORDER 7.—Resedaceæ.

Calyx inferior, of several narrow sepals. Corolla polypetalous, irregular, petals laciniate. Stamens many hypogynous. Pistil syncarpous. Ovary 3—4 lobed, 1-celled. Seeds many. Placentation parietal. Fruit opening at the apex before the seeds are ripe. Stigmas sessile.

I.—*RESEDA.*

RES'EDA LUTE'OLA. Dyer's Weed or Weld. 6—8. Leaves lanceolate entire, sepals 4, flowers minute yellowish green. *Waste places.*

RES'EDA LU'TEA. Wild Mignonette. 6—8. Leaves pinnate or pinnatifid, sepals and petals 6, flowers pale yellow. *Waste places.*

Reseda odorata is the Garden Mignonette.

ORDER 8.—Cistaceæ.

Leaves opposite entire. Calyx polysepalous inferior persistent, sepals 3, convolute in æstivation usually with 2 outer smaller sepals. Corolla polypetalous hypogynous. Petals 5, convolute in æstivation, very fugacious. Stamens polyandrous hypogynous. Pistil syncarpous, style 1, stigmas 3.

I.—*HELIANTHEMUM.*

Stem shrubby procumbent, ovules many, style jointed at base, stigma capitate or 3-lobed.

Leaves with stipules, 160

Leaves without stipules, ... H. canum.

160 Flowers yellow, ... H. vulgare.

160 Flowers white, ... H. polifolium.

HELIAN'THEMUM VULGA'RE (88). Common Rock Rose. 7—9. (162) Leaves 1 in. stipulate green above hoary beneath, flowers yellow large. *Rocky and chalky places.*

Helian'themum ca'num (9). Hoary Rock Rose. 5—7. Leaves ½ in. (161) exstipulate hoary on both surfaces, flowers yellow.
[G. (*Malham Cove.*)

Helian'themum polifo'lium (2). White Rock Rose. 7—8. Leaves stipulate (163) hoary on both surfaces, margins much recurved, flowers white.
[T. (*Brean down*).

ORDER 9.—Violaceæ.

Leaves alternate stipulate. Calyx polysepalous inferior, sepals 5 persistent. Corolla polypetalous irregular, petals 5. Stamens 5 hypogynous. Pistil syncarpous, of 3 carpels. Stigma oblique. Ovary 1-celled many-seeded, placentation parietal, dehiscence loculicidal.

I.—*VIOLA.*

Stipules small, 161
Stipules leafy, 162

161 Stem very short 163
161 Stem evident, ... Viola canina.
162 Root stock none, ... Viola tricolor.
162 Root stock branched, ... Viola lutea.
163 Leaves very hairy, ... Viola hirta.
163 Leaves glabrous or slightly hairy, 164
164 Peduncles of fruit erect, ... Viola palustris.
164 Peduncles of fruit prostrate, ... Viola odorata.

VI'OLA PALUS'TRIS (103). Marsh Violet. 4—7. Leaves cordate (164) or reniform glabrous, sepals obtuse, spur very short, flowers pale lilac. *Swamps and bogs.*

VI'OLA ODORA'TA (79). Sweet Violet. 3—4. Stem with runners, (165) leaves cordate pubescent, spur straight, sepals obtuse, flowers purple or white fragrant. *Banks.*

VI'OLA HIR'TA (71). Hairy Violet. 4—5. Runners none, leaves cordate (166) hairy, sepals obtuse, spur hooked. *Dry places.*

VI'OLA CANI'NA (112). Dog Violet. 5—8. Sepals acute, leaves (167, 168, 170, 171) ovato-cordate crenate, petioles long, stem branching. *Woods and banks.*

VI'OLA TRI'COLOR (110). Pansy. 5—9. Stem branched, stipules (173, 174) leafy pinnatifid, leaves oblong crenate, flowers purple and yellow. *Pastures.*

VI'OLA LU'TEA (62). Yellow Pansy. 5—9. Underground stems re- (176) sembling fibrous roots, leaves oblong crenate, stem branched very slender at the base, stipules leafy pinnatifid, flowers yellow sometimes partly purple. *Hilly districts.*

ORDER 10—Polygalaceæ.

Calyx polysepalous inferior, sepals 5 irregular, the 2 interior petaloid. Petals 3, hypogynous. Stamens 8, diadelphous hypogynous. Style single, hooded at the apex. Stigma oblique, ovary 2-celled.

I.—*POLYGALA.*

POLYG'ALA VULGA'RIS (59). Milkwort. 5—9. Petals adhering
(177 to the tube of the stamens, flowers blue purple pink or white in ter-
-179) minal racemes, leaves lanceolate opposite or alternate. *Heaths.*

Polyg'ala calca'rea (15). 6—7. Radical leaves obovate in a rosette,
(180) flowering shoots axillary from the lower leaves. [M. W.

ORDER II.—Carophyllaceæ.

Calyx inferior polysepalous or gamosepalous. Sepals 5. Petals 5 rarely wanting. Stamens 5 or 10 hypogynous. Ovary 1-celled, placenta free central, seeds numerous. Styles 2—5. Herbaceous plants with opposite entire leaves and swollen nodes.

Calyx gamosepalous, 165
Calyx polysepalous, 166

165 Styles 2 167
165 Styles 3—5, 168
166 Leaves with stipules, 169
166 Leaves without stipules, 170
167 Calyx with bracts at the base, ... Dianthus I.
167 Calyx without bracts, ... Saponaria II.
168 Ovary 3-celled, styles 3—4, ... Silene III.
168 Styles 5, ovary 1-celled, ... Lychnis IV.
169 Styles 3, ... Spergularia VII.
169 Styles 5, ... Spergula VI.
170 Petals entire, 171
170 Petals bifid, 173
171 Styles 4—5, 172
171 Styles 2—3, ... Arenaria VIII.
172 Capsule 8-toothed, ... Mœnchia XI.
172 Capsule opening by 4—5 valves, ... Sagina V.
173 Styles 3, ... Stellaria IX.
173 Styles 3—5. Plants pubescent, . . . Cerastium X.

I.—*DIANTHUS.*

Calyx tubular 5-toothed with bracteoles at the base, petals 5, usually crenate or jagged, stamens 10, ovary 1-celled, styles 2.

Dian'thus Arme'ria (45). Deptford Pink. 7—8. Stem 1—2 ft. Erect,
(184) leaves linear, bracts lanceolate downy as long as the calyx, petals narrow pink, flowers in terminal clusters. [W. Tb.

DIAN'THUS CARYOPHYL'LUS. Wild Carnation. 7—8. Calyx tubu-
(188) lar 5-toothed, petals 5 notched, stamens 10, stigmas 2. *Old walls.*

Dianthus barbatus is the Sweet William of Gardens and *D. sinensis* the Indian Pink.

II.—*SAPONARIA.*

Sapona'ria officina'lis. Common Soapwort. 8—9. Capsule 1-celled
(191) opening at the top by 4 valves, styles 2, leaves oblong lanceolate, panicle of several large rose-coloured flowers. *Not indigenous.*
[G. (*Austwick*), W. F. S.

III.—*SILENE.*

Calyx inflated, 5-toothed 10-nerved, petals 5, claw narrow, blade entire or divided with 2 scales at its base, stamens 10, of which 5 frequently adhere to the petals, styles 3.

Calyx inflated, 174
Calyx cylindrical, 175

174 Panicle many flowered, ... S. inflata.
174 Flowers nearly solitary, ... S. maritima.
175 Flowers in unilateral spikes, ... S. anglica.
175 Flowers in cymes, ... S. noctiflora.

SILE'NE INFLA'TA (102). Bladder Campion. 6—8. Calyx tubular
(192) inflated with netted veins, petals white deeply cleft, panicles many-flowered. *Pastures.*

SILE'NE MARIT'IMA (75). Sea Campion. 6—8. Calyx tubular in-
(193) flated, petals slightly cleft, flowers nearly solitary. *Sea-shores.*

SILE'NE AN'GLICA (57). Small-flowered Campion. 6—10. Hairy
(196) and viscid, lower leaves spathulate, flowers small white or pink in leafy racemose unilateral cymes.

Sile'ne noctiflo'ra (43). Night Catchfly. 7—8. Stem erect 1—2 ft.
(202) hairy and viscid, leaves oblong lanceolate, petals rather large 2-cleft white or pink, flowers opening at night. [Rg. F.

IV.—*LYCHNIS.*

Calyx tubular 5-toothed, petals 5 with scales on the throat (except L. Githago), stamens 10, stigmas 5.

Calyx-teeth longer than the corolla, ... L. Githago.
Calyx-teeth short, 176

176 Flowers white, ... L. vespertina.
176 Flowers red, 177
177 Petals deeply 4-cleft, ... L. Flos-cuculi.
177 Petals bifid, ... L. diurna.

LYCH'NIS GITHA'GO (97). Corn-cockle. 6—8. Calyx-teeth pro-
(209) jecting beyond the corolla, flowers solitary purple. *Cornfields.*

LYCH'NIS DIUR'NA (111). Rose Campion. 6—7. Calyx-teeth short
(205) triangular, leaves ovato-lanceolate, peduncle and calyx covered with hairs, flowers dicœcious, those on some plants containing stamens only, and those on others pistil only. *Damp banks.*

LYCH'NIS VESPERTI'NA (94). White Campion. 6—9. Similar to
(204) L. diurna, but with white flowers which are fragrant in the evening.

LYCH'NIS FLOS-CU'CULI (111). Ragged Robin. 5—6. Leaves
(206) lanceolate, petals in 4 linear segments. *Moist meadows.*

V —*SAGINA.*

Sepals 4—5, petals 4 sometimes wanting, leaves subulate, small tufted herbs.

Petals 4 or 0, 178
Petals 5, 179
178 Petals 0, ... S. apetala.
178 Petals 4, ... S. procumbens.
179 Petals longer than sepals, ... S. nodosa.
179 Petals equalling sepals, ... S. subulata.

SAGI'NA PROCUM'BENS (112). Procumbent Pearlwort. 3—9.
(242) Sepals stamens and styles 4, stems many glabrous procumbent, sepals longer than the very small petals. *Dry places.*

SAGI'NA NODO'SA (95). Knotted Pearlwort. 7—8. Stems numerous
(246) nearly erect, flowers few rather large, stamens 10, sepals petals and styles 5, petals twice as long as the sepals. *Damp places.*

SAGI'NA APET'ALA (62). Stems erect branching 2—3 in., petals
(239, 240, 241) usually absent. *Dry banks, walls, etc.*

SAGI'NA SUBULA'TA (59). 6—8. Sepals petals and styles 5,
(245) stamens 10, petals longer than the obtuse sepals. *Heaths, dry pastures, etc.*

VI.—*SPERGULA.*

SPER'GULA ARVEN'SIS (111). Corn Spurrey. 6—8. Sepals 5,
(247) petals 5 entire, stamens 5—10, styles 5, capsule 1-celled many-seeded, leaves linear whorled, stipules minute. *Cornfields.*

VII.—*SPERGULARIA.*

Sepals 5, petals 5 entire, stamens 5—10, styles 3, leaves linear.

SPERGULA'RIA RU'BRA (92). Sandwort-Spurrey. 6—9. Leaves
(248) flat, capsule not longer than the sepals. *Dry places.*

Spergula'ria mari'na (43). Seaside Sandwort-Spurrey. 6—8. Leaves
(249, 250, 251) linear fleshy, capsule longer than the calyx. *Sea-coast.*

VIII.—*ARENARIA.*

Sepals 5, petals 5 entire, stamens usually 10, styles usually 3, capsule 1-celled many-seeded opening with 6 teeth at the top.

Leaves ovate, 180
Leaves linear, 181

180 Leaves thick and fleshy, ... A. peploides.
180 Leaves thin, 182
181 Petals longer than sepals, ... A. verna.
181 Sepals twice as long as petals, ... A. tenuifolia.
182 Leaves under ½ in., ... A. serpyllifolia.
182 Leaves longer than ½ in., ... A. trinervis.

ARENA'RIA SERPYLLI'FOLIA (101). Thyme-leaved Sandwort.
(234) 6—8. Leaves ovate acute sessile (¼—⅓ inch long), sepals longer than the petals hairy. *Dry places.*

ARENA'RIA TRINER'VIS (96). Three-nerved Sandwort. 5—6.
(233) Leaves ovate acute petiolate (½—1 inch long) nerved, sepals longer than the petals. *Damp places.*

Arena'ria ver'na (27). Vernal Sandwort. 5—7. Leaves linear subulate
(229) (¼—⅓ in. long), petals longer than the lanceolate sepals.
[G. (*Malham, Lead-mines between Settle and Malham.*)

ARENA'RIA PEPLOI'DES (68). Sea-Purslane. 5—8. Creeping
(237) fleshy, leaves dark green glabrous ovate acute, margins cartilaginous. *Sandy shores.*

Arena'ria tenuifo'lia (33). Fine-leaved Sandwort. 6—8. Stem slender
(232) erect 3—4 in. much-branched, leaves subulate, sepals lanceolate twice as long as the petals. [W.

IX.—*STELLARIA.*

Sepals 5, petals 5 deeply cloven, stamens 10, styles and stigmas usually 3, capsules 1-celled many-seeded, with 6 teeth.

Flowers under ¼ inch in diameter, 183
Flowers ¼—¾ inch in diameter, 184

183 Stem with alternate lines of hairs between each pair of leaves, ... S. media.
183 Stem nearly glabrous, ... S. uliginosa.
184 Sepals shorter than the petals, 185
184 Sepals as long as the petals, ... S. graminea.
185 Lower leaves with long petioles, 187
185 Leaves sessile, 186
186 Sepals nerveless, ... S. Holostea.
186 Sepals 3-nerved, ... S. glauca.
187 Most of the flowers with 5 styles, . . S. aquatica.
187 Styles 3, ... S. nemorum.

STELLA'RIA ME'DIA (112). Chickweed. 3—9. Leaves ovate,
(223) upper ones sessile, stem alternately hairy. A very variable plant. *Everywhere.*

STELLA'RIA ULIGINO'SA (107). Bog Stitchwort. 5—6. Glaucous,
(228) leaves ovato-lanceolate, petals minute. *Wet places.*

STELLA'RIA GRAMIN'EA (107). Lesser Stitchwort. 5—8. Stem
(227) 1—3 feet glabrous, 4-angled, leaves very narrow sessile ciliate, petals narrow deeply cleft as long as the 3-nerved sepals. *Dry places.*

Stella'ria nem'orum (44). Wood Stitchwort. 5—6. Lower leaves cordate
(222) petiolate, upper ones ovate sessile. [G. (*Trow Gill, Rathmell.*)

STELLA'RIA HOLO'STEA (106). Greater Stitchwort. 4—6. Stem
(225) erect rigid, leaves ovato-lanceolate, petals twice as long as the nerveless sepals. *Hedges.*

Stella'ria glau'ca (48). Marsh Stitchwort. 5—7. Glaucous, leaves very
(226) narrow, flowers solitary. [G. (*Malham Tarn*), Tb.

STELLA'RIA AQUAT'ICA (55). Water Stitchwort. 7—8. Stems
(221) 1—3 feet brittle slender, branches of lower leaves petiolate, upper leaves sessile ovato-cordate, petals narrow deeply cleft, styles 5, rarely 3. *Borders of ditches.*

X.—*CERASTIUM.*

Sepals 5 with membranous margins, petals 5 bifid, stamens 10, styles usually 5, capsules opening with 10 teeth.

Hairs of calyx some gland-tipped, 188
Hairs of calyx without glands, ... C. triviale.
188 Petals scarcely notched, ... C. semidecandrum.
188 Petals distinctly bifid, 189
189 Stem about 6 in., ... C. arvense.
189 Stem 1 foot or more, ... C. glomeratum.

CERAS'TIUM GLOMERA'TUM (110). Mouse-ear Chickweed. 4—9.
(215) Hairy, leaves ovate pale green, petals narrow, flowers in dense dichotomous panicles, pedicels shorter than the sepals. *Dry places.*

CERAS'TIUM TRIVIA'LE (111). Narrow-leaved Mouse-ear Chickweed. 4—8. Leaves lanceolate deep green, pedicels longer than the sepals. *Dry places.*

CERAS'TIUM SEMIDECAN'DRUM (83). Little Mouse-ear Chickweed. 3—5. Cymes few-flowered, plant not higher than 6 inches. *Walls and banks and sea-shores.*

CERAS'TIUM ARVEN'SE (69). 4—8. Stems 6—10 inches tufted
(219) hairy, leaves linear-lanceolate, sepals glandular acute, petals twice as long as the sepals. *Sandy fields and waste places.*

XI.—*MOENCHIA.*

Characters of *Cerastium*, but sepals, petals, and styles 4, sepals acuminate and petals entire.

Moench'ia erec'ta (50). 5—6. Stems erect slender 2—4 in., leaves linear,
(211) capsule ovate 8-toothed. [M. Wl.

ORDER 12.—Paronychiaceæ.

Leaves entire opposite or alternate. Flowers regular, sepals 4—5. Petals 4—5, or 0, stamens 1—5 hypogynous or perigynous, pistil syncarpous 1-celled, style 1 terminal.

SCLERANTHUS.

Leaves subulate opposite connate exstipulate, calyx campanulate limb 5-lobed, petals 0. Stamens 1, 2, 5, or 10, perigynous, ovary superior, styles 2.

SCLERAN'THUS AN'NUUS (95). Knawel. 6—8. Stem 2—8 in.
(1176) erect or spreading, flowers minute solitary axillary or in cymes. *Fields and waste places.*

ORDER 13.—Linaceæ.

Calyx polysepalous inferior, sepals 4—5. Corolla polypetalous of 4—5 petals. Stamens 4—5 alternate with the petals, hypogynous. Ovary 5-celled. Styles 4—5. Leaves entire exstipulate, usually alternate.

Petals 5, ... I. Linum.
Petals 4, ... II. Radiola.

I.—*LINUM.*

Leaves narrow, sepals petals and stamens 5, flowers in panicles or cymes, fruit a capsule apparently 10-celled.

Flowers white, ... L. catharticum.
Flowers blue, 190

190 Sepals acuminate, 191
190 Sepals obtuse, ... L. perenne.
191 Stem decumbent, ... L. angustifolium.
191 Stem erect, ... L. usitatissimum.

Li'num peren'ne (13). 6—7. Stems 1—2 ft. wiry, leaves alternate linear-
(288) lanceolate, sepals obovate obtuse glabrous, flowers 1 in. bright blue. [T.

Li'num angustifo'lium (35). 5—9. Stems 1—2 ft. not much branched,
(289) leaves alternate linear lanceolate, outer sepals ovate acuminate, inner sepals ciliate. [Nt. F.

LI'NUM USITATISS'IMUM. Common Flax. 7. Stem 2—3 ft., leaves
(290) lanceolate alternate, sepals ovate acuminate, flowers large blue. *Cornfields.*

LI'NUM CATHAR'TICUM (111). Purging Flax. 6—9. Stems
(287) slender 6—8 in., much branched, leaves oblong, lower leaves opposite, flowers ½ in. white. *Pastures.*

L. flavum, *L. grandiflorum*, and several other species of Linum are cultivated in gardens.

II.—*RADIOLA.*

Sepals 4, each 2—4 toothed, petals 4, stamens 4, ovary 4-celled, styles 4.

RADI'OLA MILLEGRA'NA (82). Allseed. 7—8. Stem erect 1—4
(286) in. much forked, flowers extremely minute globular. *Sandy damp places.*

ORDER 14.—Malvaceæ.

Leaves alternate stipulate. Calyx gamosepalous inferior, with an involucre of 3 or more bracts. Sepals and petals 5. Stamens indefinite monadelphous hypogynous. Pistil syncarpous. Stigmas several. Fruit of a ring of carpels.

Bracts united, ... Althæa I.
Bracts separate, ... Malva II.

I.—*ALTHÆA.*

Bracts 6—9 united, calyx 5-lobed.

Althæ'a officina'lis (28). Marsh-Mallow. 7—8. Stem erect 2—3 ft.
(273) pubescent not much branched, leaves ovato-cordate thick dentate, flowers 1—2 in. diam. rosy. [L.

The garden 'Hollyhock' is an Althæa from the South of Europe. *Hibiscus* and *Abutilon* also belong to *Malvaceæ*.

II.—*MALVA.*

Bracts 3 separate, calyx 5-lobed.

Stem decumbent, ... M. rotundifolia.

Stem erect, 192

192 Leaves deeply cut, ... M. moschata.

192 Leaves lobed, ... M. sylvestris.

MAL'VA SYLVES'TRIS (96). Common Mallow. 6—9. Calyx with
(278) a 3-leaved involucre, carpels numerous arranged in a circle, stem erect, leaves reniform, lobes crenate, flowers large purple, plant 2—3 feet high, hairy. *Waste places.*

MAL'VA ROTUND'IFOLIA (78). Dwarf Mallow. 6—9. Stem
(279) prostrate, leaves reniform lobes crenate, plant under 1 foot high, pubescent, flowers small lilac. *Waste places.*

MAL'VA MOSCHA'TA (85). Musk Mallow. 7—9. Stem erect 2—3
(277) feet high, leaves reniform, lobes pinnatifid, flowers large rose-coloured. *Dry meadows.*

ORDER 15.—Tiliaceæ.

Calyx polysepalous, inferior. Corolla polypetalous. Sepals and petals 4—5. Stamens indefinite hypogynous. Pistil syncarpous. Style 1. Stigmas 4—10. Leaves alternate stipulate.

I.—*TILIA.*

TIL'IA EUROPÆ'A. Common Lime Tree. 7. Leaves ovato-cordate
(283, glabrous (except woolly tufts in the axils of the nerves on the under
284, surface) unequal at the base, flowers in a cyme growing from a large
285) oblong leaf-like bract. *Woods.*

ORDER 16.—Hypericaceæ.

Leaves opposite entire exstipulate. Calyx polysepalous inferior. Corolla polypetalous. Sepals and petals 4—5. Stamens indefinite polyadelphous (3 or 5 bundles) hypogynous. Pistil syncarpous. Fruit a many-celled capsule.

HYPERICUM.

Stamens in 3 bundles, 194
Stamens in 5 bundles, 193 . . . H. Androsæmum.
194 Margins of sepals without glands, 195
194 Margins of sepals with glandular teeth, 196
195 Stem erect with 2 ridges, ... H. perforatum.
195 Stem erect 4-angled, ... H. quadrangulum.
195 Stem weak prostrate, ... H. humifusum.
196 Stem hairy, { Leaves glabrous above, ... H. hirsutum.
Leaves woolly, ... H. Elodes.
196 Stem glabrous, 197
197 Leaves cordate. Buds tipped with red, . . H. pulchrum.
197 Leaves oblong, margins with black glands, H. montanum.

HYPER'ICUM PERFORA'TUM (97). St. John's Wort. 7—9.
(263) Stem erect with 2 ridges, leaves oblong obtuse with transparent dots, secondary nerves opaque. *Thickets.*

HYPER'ICUM QUADRANG'ULUM (71). Square-stalked St. John's
(264) Wort. 7—9. Stem erect with 4 ridges, leaves ovate oblong with transparent dots, secondary nerves transparent. *Moist places.*

HYPER'ICUM PUL'CHRUM (111). Small St. John's Wort. 7—8.
(269) Stem round glabrous erect, leaves cordate obtuse with transparent dots, upper leaves oblong. *Commons.*

HYPER'ICUM HUMIFU'SUM (95). Trailing St. John's Wort. 7—8.
(267) Stems many procumbent leafy 4—10 inches long, leaves oblong without transparent dots.

HYPER'ICUM HIRSU'TUM (86). Hairy St. John's Wort. 7—8.
(270) Stem erect hairy, leaves ovate shortly stalked with transparent dots.

Hyper'icum monta'num (44). Mountain St. John's Wort. 7—8. Stem
(271) erect glabrous, leaves ovate sessile, margin with black glands.
[G. (*Malham Cove, Gordale, Ingleton.*)

HYPER'ICUM ANDROSÆ'MUM (74). Tutsan. 6—8. Shrubby
(259) glabrous, stem 1—2 ft., leaves ovate, sepals 5 unequal without glandular teeth, petals deciduous, stamens cohering at the base only in 5 bundles. *Hedges and Thickets.*

HYPER'ICUM ELO'DES (60). 7—8. Stems 3—8 in. many creeping,
(272) leaves woolly orbicular semiamplexicaul, sepals equal fringed with glandular teeth, petals pale-yellow persistent, stamens 15 in 3 bundles alternating with bifid hypogynous scales. *Bogs, ditches, and wet moors.*

H. Calycinum, with flowers 3—4 in. diameter, is cultivated in gardens, as well as several other species.

ORDER 17.—Aceraceæ.

Sepals and petals 4—9 (usually 5) distinct. Stamens 8 inserted upon a hypogynous disk. Pistil syncarpous superior of 2 carpels. Style 1. Stigmas 2. Fruit a samara.

I.—*ACER.*

A'CER PSEUDO-PLAT'ANUS. Sycamore. 5—6. Leaves 5-lobed cre-
(318) nate, racemes pendulous. *Woods.*

A'CER CAMPES'TRE (62). Maple. 5—6. Leaves 5-lobed unequally
(319) serrate, racemes erect. *Woods and Hedges.*

A. Saccharatum is the North American Sugar-maple.

ORDER 18.—Geraniaceæ.

Sepals and petals 5 distinct. Stamens 10 monadelphous hypogynous. Pistil syncarpous of 5 carpels superior. Styles 5 united, stigmas 5. Fruit with a long beak.

Stamens 10, all bearing anthers, ... Geranium I.
Stamens 5, staminodes 5, ... Erodium II.

I.—*GERANIUM.*

Fruit beaked, separating into 5 carpels, each with a long recurved awn smooth on the inside.

Peduncles one-flowered, ... G. sanguineum.
Peduncles two-flowered, 198
198 Flowers large, 199
198 Flowers small, 201
199 Sepals mucronate, 200
199 Sepals with a long awn, 203
200 Petals notched, ... G. pyrenaicum.
200 Petals entire, ... G. phœum.
201 Leaves deeply cut, 204
201 Leaves roundish, lobed, 202
202 Glabrous, ... G. lucidum.
202 Hairy, ... G. molle.
203 Peduncles of fruit erect, ... G. sylvaticum.
203 Peduncles of fruit deflexed, ... G. pratense.
204 Capsule hairy, ... G. dissectum.
204 Capsule glabrous, 205

205 Plants with a strong odour, . . . G. Robertianum.
205 Odour none, 206
206 Peduncles shorter than petioles, ... G. pusillum.
206 Peduncles longer than petioles, ... G. columbinum.

GERA'NIUM SANGUIN'EUM (62). Bloody Crane's-bill. 7—8.
(291) Peduncles 1-flowered, leaves orbicular palmatifid, lobes trifid, flowers 1—1½ inch in diameter crimson. *Dry rocky places.*

GERA'NIUM LU'CIDUM (89). Shining Crane's-bill. 5—8. Leaves
(303) and stalk shining often bright red, leaves orbicular 5-lobed. *Rocks and walls.*

GERA'NIUM MOL'LE (112). Dove's-foot Crane's-bill. 4—8. Leaves
(298) reniform lobed downy, flowers small pink, sepals mucronate shorter than the notched petals, carpels wrinkled. *Waste places.*

GERA'NIUM PUSIL'LUM (75). 6—9. Leaves as in G. Molle but
(299) more deeply lobed, sepals acute as long as the notched petals, carpels not wrinkled. *Hedge-banks and waste places.*

GERA'NIUM PHŒ'UM. Dusky Crane's-bill. 6—7. Leaves orbicular
(294) lobed, lobes cut and serrate, flowers ¾ inch in diameter dusky purple, sepals mucronate, petals waved. [G. (*Wharfe, Clapham, Ingleton.*)

GERA'NIUM PRATEN'SE (85). Blue Meadow Crane's-bill. 6—7.
(296) Flower 1¼ inch in diameter, petals not notched, leaves orbicular multipartite lobes laciniate. *Meadows.*

GERA'NIUM ROBERTIA'NUM (109). Herb-Robert. 5—9. Leaves
(304) ternate or quinate with pinnatifid leaflets, flowers small red, whole plant with a strong disagreeable odour. *Waste places and banks.*

GERA'NIUM COLUMBI'NUM (74). 6—7. Long-stalked Crane's-bill.
(302) Leaves 5—7 partite, lobes distant pinnatifid, segments narrow, flowers rose-coloured, sepals long-awned, peduncles long and slender, capsules glabrous. *Dry pastures.*

GERA'NIUM DISSEC'TUM (104). Jagged-leaved Crane's-bill. 5—8.
(301) Leaves as in G. columbinum, peduncles very short, capsules hairy. *Waste places.*

GERA'NIUM SYLVAT'ICUM (51). Wood Crane's-bill. 6—7.
(295) Leaves orbicular deeply 7-lobed, lobes cut and serrate, flowers rose-coloured or purple ½–¾ in. dia., petals slightly notched. *Moist meadows.*

GERA'NIUM PYRENA'ICUM (55). 6—8. Leaves orbicular deeply
(297) cut into 5—7 coarsely-toothed lobes, flowers many ½ in. reddish purple, petals deeply cut, sepals mucronate. *Meadows.*

II.—*ERODIUM.*

Fruit beaked, separating into 5 carpels each with a long spiral awn bearded on the inside.

ERO'DIUM CICUTA'RIUM (99). Hemlock Stork's-bill. 6—9. Hairy,
(305) peduncles many-flowered, leaves pinnate, leaflets pinnatifid, stipules lanceolate. *Waste places.*

Ero'dium moscha'tum (11). Musky Stork's-bill. 6—7. Stipules ovate,
(306) leaflets less deeply cut than E. cicutarium, peduncles 2—5 flowered, plant smelling of musk. [G. *Gargrave.*

ORDER 19.—Oxalidaceæ.

Sepals and petals 5. Stamens 10, hypogynous. Pistil syncarpous superior. Ovary 5-celled. Styles 5 separate.

I.—*OXALIS.*

OX'ALIS ACETOSEL'LA (109). Wood-sorrel, Shamrock. 4—6.
(308) Peduncles 1-flowered radical, leaves ternate, leaflets obcordate hairy, flowers white with purple veins.

ORDER 20.—Celastraceæ.

Calyx gamosepalous inferior. Corolla polypetalous. Stamens perigynous inserted into the large flat disk, alternate with the petals. Sepals petals and stamens usually 4. Ovary buried in the disk usually 4-celled.

I.—*EUONYMUS.*

EUON'YMUS EUROPÆ'US (71). Spindle-tree. 5—6. Branches
(315) 4-angled glabrous, leaves opposite ovato-lanceolate serrate, flowers small, peduncles axillary few-flowered, disk large peltate, fruit a crimson berry, seeds 1—4 with an orange *arillus*. *Copses and hedges.*

E. latifolius, *E. atropurpureus*, and other exotic species, are planted in shrubberies.

ORDER 21.—Rhamnaceæ.

Calyx gamosepalous 4—5-cleft inferior. Petals hooded, sometimes wanting. Stamens 4 or 5 opposite petals, hypogynous. Disk large. Ovary 3-celled. Fruit a berry with 3—4 stones.

I.—*RHAMNUS.*

RHAM'NUS CATHAR'TICUS (55). Buckthorn. 5—7. Leaves ovate
(316) serrate, branches thorny, flowers 4-cleft dicœcious, berries black. *Woods and thickets.*

RHAM'NUS FRAN'GULA (58). Leaves obovate entire, branches not
(317) thorny, flowers 5-cleft perfect, berries black when ripe. *Woods and thickets.*

ORDER 22.—Leguminosæ.

Calyx gamosepalous 5-partite. Corolla polypetalous irregular (papilionaceous) perigynous. Stamens 10 perigynous, filaments united. Pistil superior of one carpel. Style incurved. Stigma simple. Fruit a legume. Seeds one or many, exalbuminous. Leaves alternate usually compound, stipulate.

Stamens monadelphous, ... 207
Stamens diadelphous (upper stamen free, the rest united), 208

207 Leaves simple, 209
207 Leaves compound, 210

208 Leaves ternate, ... 211
208 Leaves pinnate or ternate with leafy stipules, 213

209 Calyx nearly as long as the corolla, with bracts, Ulex II.
209 Calyx much shorter than the corolla, without bracts, Genista III.

210 Lower leaves ternate, 214
210 Leaves pinnate, ... Anthyllis VI.

211 Flowers in racemes, 215
(in Medicago lupulina apparently in heads)
211 Flowers in heads, 212

212 Pod much longer than calyx, ... Trigonella XIII.
212 Pod seldom exceeding calyx, ... Trifolium IX.

213 Leaves with a terminal leaflet (unequally pinnate), 216
213 Leaves equally pinnate, 219

214 Calyx 2-lipped, ... Cytisus I.
214 Calyx campanulate 5-cleft, ... Ononis V.

215 Racemes equal, ... Medicago VII.
215 Racemes one-sided long, . . . Melilotus VIII.

216 Peduncles with a terminal leaf, 220
216 Peduncles without a terminal leaf, 217

217 Flowers in racemes, 218
217 Flowers in umbels, ... Hippocrepis XIV.

218 Flowers pink, ... Onobrychis XII.
218 Flowers yellow, ... Astragalus IV.

219 Style round, hairy on the lower side or on both, Vicia XV.
219 Style flat, hairy only on the upper or inner side, Lathyrus XVI.

220 Flowers yellow, ... Lotus X.
220 Flowers pink, ... Ornithopus XI.

I.—*CYTISUS.*

CYTIS'US SCOPA'RIUS (109). Common Broom. 5—6. Calyx
(326) 2-lipped without bracts at the base, upper lip 2-toothed, lower lip 3-toothed, standard large, style coiled thickened upwards, stamens monadelphous, branches angled glabrous long straight, leaves ternate petiolate, upper ones simple, pods black. *Heaths.*

Cytisus laburnum is the common Laburnum.

II.—*ULEX.*

Much-branched thorny shrubs with simple leaves and yellow axillary flowers, stamens monadelphous.

U'lex na'nus (24). Dwarf-furze. 7—11. Bracts minute, calyx nearly gla-
(325) brous, a bush 2—3 feet high. [N. Tb.

U'LEX EUROPÆ'US (110). Furze, Gorse, Whin. 2—3 and 8—9.
(323) Calyx hairy with 2 ovate bracts, branches striate with acute branching spines and few minute lanceolate leaves, a bush 3—5 feet high. *Heaths.*

III.—*GENISTA.*

Calyx 2-lipped, upper lip deeply bifid, lower lip 3-toothed, standard oblong entire, stamens monadelphous.

GENIS'TA TINCTO'RIA (73). Dyer's Green Weed. 7—9. Stem
(322) erect glabrous without spines, leaves lanceolate, stipules minute subulate, flowers yellow in slender racemes, each flower from the axil of a bract. *Thickets.*

GENIS'TA ANG'LICA (86). Needle Green Weed. 5—6. Branches
(320) armed with spines, flowers yellow solitary axillary, leaves ovato-lanceolate, stipules none. *Heaths.*

IV.—*ASTRAGALUS.*

Leaves unequally pinnate, leaflets entire, flowers in axillary racemes or spikes, stamens diadelphous, calyx 5-toothed, petals narrow, keel obtuse, pod 2-celled.

ASTRAG'ALUS GLYCYPHYL'LOS (63). Milk-vetch. 6—9. Stem
(373) 2—3 feet zigzag, leaves 4—6 in., leaflets 11 or 13 glabrous, flowers cream-coloured in compact ovoid racemes 1—2 in. long, peduncles shorter than leaves. *Fields and copses.*

V.—*ONONIS.*

Calyx campanulate 5-cleft, standard large striate, wings oblong, stamens monadelphous, legume swollen few-seeded, leaves simple or trifoliolate.

ONO'NIS ARVEN'SIS (99). Rest-harrow. 6—9. Stem procumbent
(327) hairy without spines, leaflets oblong, flowers rose-coloured axillary. *Heaths.*

ONO'NIS SPINO'SA (69). Spiny Rest-harrow. 6—9. Stem 3—4 in.
(328) erect spinous. *Moors.*

VI.—*ANTHYLLIS.*

ANTHYL'LIS VULNERA'RIA (105). Kidney Vetch. 6—8. Calyx
(365) inflated mouth oblique 5-toothed woolly, petals nearly equal in length, flowers in crowded heads which grow in pairs, bracts large. *Dry pastures.*

VII.—*MEDICAGO.*

Calyx with 5 nearly equal teeth, stamens diadelphous, pod spirally curved or coiled or sickle-shaped, leaves ternate, stipules adnate to the petiole.

Flowers purple, ... M. Sativa.
Flowers yellow, 220*
220* Pod 1-seeded, ... M. lupulina.
220* Pod many-seeded, ... M. maculata.

MEDICA'GO SATI'VA. Lucerne. 6—7. Stem erect, flowers purple in
(331) racemes, leaflets obovate oblong toothed, pod with 2—3 coils downy. *Cultivated for forage.*

MEDICA'GO LUPULI'NA (100). Nonsuch. 5—8. Stem procum-
(334) bent, leaflets obovate toothed, flowers small yellow in ovate heads, pod of 1 coil reticulate 1-seeded. *Waste places.*

Medica'go macula'ta (40). 5—8. Nearly glabrous, pod many-seeded with
(336) 3—5 coils and 2 rows of long curved spines. [T. W. Tb. L.

VIII.—*MELILOTUS.*

Calyx 5-toothed, leaves ternate, stipules slender adnate to the petiole, leaflets obovate toothed, flowers in one-sided racemes, plants fragrant.

MELILO'TUS OFFICINA'LIS (72). Melilot. 6—8. Flowers yel-
(338) low, pod hairy. *Fields.*

Melilo'tus al'ba (40). 7—8. Flowers white, pod glaborus.
(339) [Tb. Wl. F.

IX.—*TRIFOLIUM.*

Calyx 5-toothed, wings and keel united, stamens diadelphous, flowers in heads or dense umbels, pods not longer than the calyx, leaves ternate, stipules adnate to petiole.

Flowers pedicellate, 221
Flowers sessile, 222

221 Flowers white, ... T. repens.
221 Flowers red, ... T. fragiferum.
221 Flowers yellow, 223

222 Heads cylindrical, ... T. arvense.
222 Heads ovate, 224

223 Flowers many in a head, 226
223 Flowers 2—6 in a loose raceme, . . . T. filiforme.

224 Calyx glabrous, ... T. medium.
224 Calyx hairy, 225

225 Flowers large purple, ... T. pratense.
225 Flowers small pale-red, 227

226 Heads hop-shaped flowers many, ... T. procumbens.
226 Flowers 6—15 in a head, ... T. minus.

227 Calyx-teeth subulate erect, ... T. striatum.
227 Calyx-teeth lanceolate spreading, . . . T. scabrum.

TRIFO'LIUM RE'PENS (112). Dutch Clover. 5—9. Heads glo-
(358) bose white on long peduncles, pedicels deflexed after flowering, leaflets obovate serrate. *Pastures.*

TRIFO'LIUM ARVEN'SE (92). Hare's-foot Trefoil. 7—9. Head
(350) terminal cylindrical very hairy soft, flowers minute pink, leaflets linear obovate. *Dry pastures.*

TRIFO'LIUM FILIFOR'ME (61). Slender Yellow Trefoil. 6—7.
(364) Flowers 2—6 in lax racemes on slender peduncles, leaflets obcordate. *Dry pastures.*

TRIFO'LIUM ME'DIUM (99). Zigzag Trefoil. 6—9. Heads 1—1½
(344) inch in diameter globose, calyx glabrous with hairy teeth, flowers purple, stem straggling zigzag. *Meadows.*

TRIFO'LIUM PRATEN'SE (112). Purple Clover. 3—9. Heads
(343) ½—1½ inches in diameter globose, calyx hairy, flowers purple. *Meadows.*

TRIFO'LIUM PROCUM'BENS (101). Hop Trefoil. 6—8. Flowers
(362) yellow numerous in dense hop-like heads, leaflets obovate. *Pastures.*

TRIFO'LIUM MI'NUS (100). Lesser Yellow Trefoil. 6—7. Leaf
(363) lets obcordate toothed, heads few flowered, pedicels very short. *Pastures.*

TRIFO'LIUM FRAGIF'ERUM (70). Strawberry Clover. 7—8.
(359) Glabrous, stem 6—12 in. creeping, leaflets obovate serrate, heads globose on long peduncles, calyx inflated and teeth deflexed after flowering, flowers small red. *Meadows and ditches.*

TRIFO'LIUM STRIA'TUM (70). Knotted Clover. 6—7. Softly
(352) hairy, stems 4—12 inches tufted spreading, leaflets obovate entire, flower heads small ovoid chiefly terminal sessile, flowers very small pale red, calyx-teeth subulate erect after flowering. *Dry pastures.*

Trifo'lium sca'brum (47). Rough Clover. 5—7. Pubescent, stems 4—10
(353) in. procumbent, flower heads small ovoid axillary sessile, flowers very small white, calyx-teeth triangular recurved in fruit. [L.

X.—*LOTUS.*

Leaves 4—5 foliolate or ternate with leafy stipules, calyx nearly equally 5-cleft, flowers in umbels on long peduncles with a leaf at the apex, pods cylindric.

LO'TUS CORNICULA'TUS (112). Bird's-foot Trefoil. 7—8. Stem
(366) decumbent, heads 5—10 flowered, calyx-teeth erect in bud 2 upper converging. *Dry places.*

LO'TUS MA'JOR (100). Narrow-leaved Bird's-foot Trefoil. 7—8. Stem
(368) erect, calyx-teeth spreading in bud 2 upper diverging. *Moist meadows.*

XI.—*ORNITHOPUS.*

ORNI'THOPUS PERPUSIL'LUS (76). Bird's-foot. 5—7. Calyx nearly
(352) equally 5-toothed, leaves unequally pinnate with 6—14 pairs of leaflets, flowers minute white or pink in heads, peduncle with a pinnate bract at its apex. *Dry places.*

XII.—*ONOBRYCHIS.*

Ono'brychis sati'va (27). Sainfoin. 6—8. Leaves unequally pinnate
(380) with about 15 entire oblong leaflets, flowers rosy red numerous in compact ovoid racemes with long peduncles, calyx short woolly, pod twice as long as calyx upper edge smooth lower edge semicircular tubercled. [M. Tb. L. Wl. F.

XIII.—*TRIGONELLA.*

Trigonel'la ornithopodioi'des (29). Fenugreek. 6—8. Stems prostrate
(330) 2—5 in., closely matted glabrous, leaves ternate, leaflets obcordate, flowers white or pink with short peduncles axillary solitary or 2 or 3 together, pod linear-oblong slightly curved glabrous 6—8 seeded. [W.

XIV.—*HIPPOCREPIS.*

Hippocre'pis como'sa (45). Horse-shoe Vetch. 5—8. Leaves unequally (379) pinnate, with 4—6 pairs of obovate leaflets, flowers yellow 5—8 in an umbel, peduncles long, legumes of numerous joints each curved like a horse-shoe. [G. M. W. Tb.

XV.—*VICIA.*

Calyx tubular 5-toothed, 2 upper teeth shortest, stamens diadelphous, style filiform usually hairy both above and below, leaves unequally pinnate with a tendril in place of the odd leaflet.

Peduncles long, 229
Peduncles short, 228

228 Flowers yellow, ... V. lutea.
228 Flowers blue or red, 232
229 Peduncles many-flowered, 234
229 Peduncles few-flowered, 230
230 **Plant glabrous,** 231
230 Plant hairy, ... V. hirsuta.
231 Leaflets 1—2 pairs, ... V. bithynica.
231 Leaflets 3—6 pairs, ... V. tetrasperma.
232 Flowers 1—2 axillary, 233
232 Flowers 4—6 in a raceme, ... V. sepium.
233 Flowers large, seeds smooth, ... V. sativa.
233 Flowers small, seeds granulated, ... V. lathyroides.
234 Flowers blue, ... V. Cracca.
234 Flowers white with blue veins, . . . V. sylvatica.

VIC'IA SATI'VA (87). Common Vetch. 5—6. Flowers nearly sessile (391, in pairs, leaflets variable 5—6 pairs, stipules ½-hastate often with a 392) dark blotch, pod glabrous, seeds smooth. *Fields.*

VIC'IA SE'PIUM (105). Bush Vetch. 5—8. Stem climbing, leaflets (387) 6—8 pairs smaller upwards ovate, stipules ½-sagittate, flowers dull purple 2—6 in a nearly sessile raceme. *Hedges.*

VIC'IA SYLVAT'ICA (72). Wood Vetch. 6—8. Peduncles long (386) many-flowered, tendrils branched, lower stipules crescent-shaped deeply toothed, flowers white with blue veins 6—18 in a raceme. *Rocky woods.*

VIC'IA CRAC'CA (112). Tufted Vetch. 6—8. Peduncles long many- (384) flowered, tendrils branched, stipules ½-sagittate entire, flowers blue 10—30 in a raceme. *Hedges, fields, and waste places.*

VIC'IA HIRSU'TA (104). Hairy Tare. 6—8. Peduncles long few
(381) (1—6) flowered, leaflets 6—8 pairs obtuse, flowers small pale blue, pod hairy 2-seeded. *Hedges and waste places.*

Vic'ia lu'tea (16). Yellow Vetch. 6—8. Stems 6—18 in. prostrate
(388) tufted, leaflets 5—7 pairs linear oblong, flowers solitary sessile pale yellow, pod hairy. [L.

VIC'IA LATHYROI'DES (52). Spring Vetch. Stem 6—8 inches
(393) spreading glabrous, leaflets 2—3 pairs oblong or obovate obtuse or notched, flowers small solitary sessile lilac, pod glabrous, seeds granulated. *Dry pastures and roadsides.*

VIC'IA TETRASPER'MA (72). Slender Vetch. Stems 1—2 ft.
(382) slender, leaflets 3—6 pairs narrow, flowers small pale blue, peduncles long slender with 1—6 flowers, pod flat usually with 4 seeds. *Hedges, cornfields, etc.*

Vic'ia bithyn'ica (17). 5—6. Stems 1—2 ft. weak angular, leaflets 1—2
(394) pairs oblong or linear, flowers solitary or 2 together pale purple, pod 1½ in. long hairy.

XVI.—*LATHYRUS.*

Style flattened bearded only on its inner face (generally resembling Vicia).

With tendrils, 235

Without tendrils, 236

235 Flowers yellow, ... **L. pratensis.**

235 Flowers purple, ... **L. sylvestris.**

236 Petioles linear, leaflets none, ... **L. Nissolia.**

236 Leaflets 2—4 pairs, ... **L. macrorrhizus.**

LATH'YRUS PRATEN'SIS (109). Meadow Vetch. 6—9. Stem
(399) angled 1—2 ft. leaflets lanceolate 1 pair, stipules very large, tendrils short, flowers yellow 3—12 in a raceme. *Hedges and meadows.*

LATH'YRUS SYLVES'TRIS (60). Everlasting pea. 6—8. Stem
(402) winged 3—5 ft. leaflets 4—6 in. lanceolate 1 pair, peduncles 6 in. long, flowers purplish 3—10 in a loose raceme.

Lath'yrus Nisso'lia (49). Grass Vetch. 5—6. Leaves 0, petioles
(396) linear 3—6 in. leaflike, peduncles slender 1—4 in. 1-flowered, flowers crimson. [W. Tb. Nt. F.

LATH'YRUS MACRORRHI'ZUS (99). Tuberous Bitter Vetch. 5—7.
(405) Stem winged, leaflets elliptic oblong 2—4 pairs, tendrils 0, stipules ½-sagittate, flowers crimson in long-stalked racemes. *Copses and thickets.*

ORDER 23.—Rosaceæ.

Calyx gamosepalous usually of 5 sepals, inferior or superior. Corolla regular polypetalous usually of 5 petals. Stamens many perigynous. Pistil apocarpous (spuriously syncarpous when the calyx tube is adherent to the ovary). Fruit a pome or of one or many drupes or achenes or follicles.

Ripe carpels not enclosed within the calyx tube, 237
Ripe carpels enclosed within the calyx tube, 238

237 Herbs, 239
237 Shrubs, 240
238 Herbs, 241
238 Shrubs, 242
239 Sepals equal, 243
239 Sepals with alternate smaller segments, 244
240 Style 1, ... Prunus I.
240 Styles many, ... Rubus II.
241 Petals 5, ... Agrimonia III.
241 Petals 0, 246
242 Carpels 1—5, 247
242 Carpels many, ... Rosa IV.
243 Leaves simple, ... Dryas V.
243 Leaves pinnate, ... Spiræa VI.
244 Achenes with a long jointed awn, ... Geum VII.
244 Achenes with a short style, 245
245 Achenes on a fleshy receptacle, . . . Fragaria VIII.
245 Achenes on a dry receptacle, . . . Potentilla IX.
246 Stamens 1—4, 248.
246 Stamens many, ... Poterium X.
247 Fruit a fleshy pome (endocarp cartilaginous), . Pyrus XIV.
247 Fruit a drupe enclosing one or more bony stones (endocarp bony). . . . . Cratægus XIII.
248 Calyx 4-cleft, ... Sanguisorba XI.
248 Calyx 8-cleft, ... Alchemilla XII.

I.—*PRUNUS.*

Calyx deciduous 5-cleft, petals 5, ovary solitary superior, fruit a drupe.

PRU'NUS COMMU'NIS (103). Sloe, Blackthorn. 4—5. Flowers (407, 408) one or two together, leaves elliptical, branches spinous. *Copses.*

PRU'NUS PA'DUS (58). Bird Cherry. 5—6. Flowers in a pendulous (412) raceme, leaves elliptical or obovate doubly serrate. *Woods.*

PRU'NUS CERA'SUS (90). Wild Cherry. 5—6. Flowers in almost (411, 412) sessile umbels, leaves elliptical or obovate irregularly serrate. *Woods.*

Prunus Armeniaca (Apricot) and *Prunus domestica* (Plum) are common in cultivation.

II.—*RUBUS.*

Calyx 5-cleft, petals 5, fruit of succulent drupes on an elevated receptacle.

Stem herbaceous, 249
Stem shrubby, 250

249 Stem erect, flowers solitary, . . . R. Chamæmorus.
249 Stem prostrate, flowers corymbose, . . R. saxatilis.
250 Stem with suckers, ... R. Idæus.
250 Stem without suckers, 251
251 Leaves green beneath, 252
251 Leaves white and downy beneath, . . R. corylifolius.
252 Stem glaucous, fruit with bluish bloom, ... R. cæsius.
252 Stem not glaucous, fruit black, ... R. fruticosus.

Many other species of Rubus have been distinguished, mostly resembling R. fruticosus and R. corylifolius, for the characters of which larger works must be consulted.

Ru'bus Chamæmo'rus (35). Cloud-berry. 6—7. Stem erect, leaves (476) simple lobed serrate, flowers large white solitary terminal. [G. (*Ryeloaf, Ingleborough, North side Pennyghent.*)

RU'BUS SAXAT'ILIS (61). Stone-Bramble. 6—8. Stem prostrate, (475) flowering shoots erect, leaves ternate, flowers small in terminal corymbs, fruit of few red drupes. *Stony banks.*

RU'BUS IDÆ'US (105). Raspberry. 6—8. Stem prickly, leaves (416) pinnate with 3 or 5 ovate leaflets white beneath, flowers drooping, fruit scarlet separating easily from the conical white receptacle. *Woods.*

RU'BUS FRUTICO'SUS. Common Bramble. 7—8. Stem angular (417-419, etc.) prickly, prickles confined to the angles of the stem, leaves ternate or pinnate with close white down beneath, flowers in terminal panicles, fruit black. *Hedges.*

RU'BUS CÆ'SIUS (68). Dewberry. 6—8. Stem prostrate glaucous, (474) leaflets green on both surfaces, drupes few large glaucous. *Hedges and thickets.*

RU'BUS CORYLIFO'LIUS (38). Common Bramble. 6—8. Stem
(471) round with scattered prickles, leaflets without close white down beneath. *Hedges.*

III.—*AGRIMONIA.*

AGRIMO'NIA EUPATO'RIA. Agrimony. 6—8. Calyx turbinate
(501) 5-cleft covered with hooked bristles, petals 5 yellow, stamens 7—20 growing from the disk which lines the calyx-tube, carpels 2 included in the calyx-tube, styles exserted, flowers in a long terminal spike-like raceme, leaves pinnate, leaflets irregularly serrate very various in size. *Banks.*

IV.—*ROSA.*

Achenes numerous hairy terminated by the persistent style and enclosed within the fleshy tube of the calyx which is contracted at the mouth and enlarged into a disk, sepals 5, petals 5, stamens many inserted on the disk, leaves pinnate.

Prickles slightly curved, shoots with stiff bristles, 249*
Shoots without bristles, 250*
249* Leaves simply serrate, ... R. spinosissima.
249* Leaves doubly serrate, ... R. involuta.
250* Leaflets covered beneath with glandular hairs, 251*
250* Leaflets without glandular hairs, 252*
251* Prickles uniform, 253
251* Prickles various, ... R. rubiginosa.
252* Prickles equal, ... R. canina.
252* Prickles unequal, ... R. arvensis.
253 Prickles straight, ... R. villosa.
253 Prickles hooked, 254
254 Sepals doubly pinnate, ... R. inodora.
254 Sepals simply pinnate, ... R. micrantha.

RO'SA SPINOSIS'SIMA (90). Burnet Rose. 5—6. Leaflets small
(506) glabrous above, fruit globular black glabrous, sepals persistent, prickles crowded unequal.

Ro'sa involu'ta (49). Sabine's Rose. 5—7. Leaflets densely hairy doubly
(507) serrate, prickles scattered, fruit red bristly. [G. (*Ingleton.*)

RO'SA RUBIGINO'SA (57). Sweet-briar. 6—7. Leaflets doubly
(511) serrate covered beneath with fragrant glandular hairs, prickles numerous larger hooked smaller subulate. *Heaths.*

RO'SA CANI'NA (110). Common Dog-rose. 6—7. Very variable,
(514) prickles equal hooked, fruit red with deciduous sepals. *Hedges.*

RO'SA ARVEN'SIS (70). Trailing Rose. 6—7. Shoots long trailing,
(516) prickles stout hooked, styles united in a column. *Hedges and thickets.*

RO'SA VILLO'SA (106). Villous Rose. 6—7. Prickles uniform nearly
(509, straight, calyx-segments persistent slightly pinnate, fruit scarlet.
510) *Hedges and thickets.*

Ro'sa inodo'ra (9). Slightly-scented Briar. 6—7. Prickles uniform
(513*d*) hooked, leaves downy, fruit elliptical. [G. (*Cave-Ha'-Wood.*)

RO'SA MICRAN'THA (54). Small flowered Briar. 6—7. Prickles
(512) uniform hooked, leaves downy, fruit ovate. *Hedges.*

V.—*DRYAS.*

Dry'as octopet'ala (16). Mountain Avens. 6—7. Sepals 8—10 equal,
(477) petals 8, achenes with a long feathery awn not jointed, leaves petiolate ovate crenate white and downy beneath.
[G. (*Arncliffe Clouder.*)

VI.—*SPIRÆA.*

Calyx inferior persistent 5-cleft, stamens numerous, follicles 3—12 few-seeded.

SPIRÆ'A ULMA'RIA (112). Meadow-sweet. 6—8. Leaves pinnate
(414) downy beneath, terminal leaflets large lobed, flowers numerous white fragrant in a compound cyme. *Meadows.*

SPIRÆ'A FILIPEN'DULA (61). Dropwort. 6—7. Leaves pinnate,
(415) leaflets uniform serrate, flowers yellowish in a cyme.

VII.—*GEUM.*

Calyx 10-cleft, alternate segments small, petals 5, stamens many, achenes with long hooked and jointed awns.

GE'UM URBA'NUM (104). Wood Avens. 6—8. Flowers erect yellow,
(478) upper joint of awn short, leaves pinnate. *Hedges.*

GE'UM RIVA'LE (90). Water Avens. 5—7. Flowers drooping dull
(480) orange, calyx purple, upper joint of awn as long as the hairy lower joint. *Marshy places.*

Ge'um interme'dium (46). A hybrid. [M.
(479)

VIII.—*FRAGARIA.*

FRAGA'RIA VES'CA (111). Wild Strawberry. 5—7. Calyx 10-cleft,
(481) alternate segments smaller, petals 5, stamens many, achenes numerous minute on a convex fleshy receptacle, calyx of fruit reflexed, hairs of peduncle spreading, of pedicel adpressed silky, leaves ternate. *Woods.*

IX.—*POTENTILLA.*

Calyx 8—10 cleft, alternate segments smaller, petals 4—5, achenes numerous on a dry receptacle.

Achenes few (4—10), ... P. procumbens.
Achenes many, 255
255 Leaves pinnate, 256
255 Leaves digitate, 257
256 Flowers yellow, ... P. anserina.
256 Flowers dingy purple, ... P. Comarum.
257 Flowers yellow, 258
257 Flowers white, ... P. Fragariastrum.
258 Stem ascending, 259
258 Stem prostrate, 260
259 Leaves white beneath, ... P. argentea.
259 Leaves green, ... P. alpestris.
260 Stem 3—6 inches long, ... P. verna.
260 Stem 4—18 inches long, 261
261 Stem rooting, flowers solitary, petals 5, . . P. reptans.
261 Stem not rooting, flowers in cymes, petals 4, . P. Tormentilla.

POTENTIL'LA ANSERI'NA (112). Silver-weed. 6—7. Leaves (491) pinnate serrate silky especially beneath, stem creeping, peduncles axillary single-flowered. *Roadsides and waste places.*

POTENTIL'LA FRAGARIAS'TRUM (101). Barren Strawberry. (485) 3—5. Leaves ternate, leaflets obovate serrate silky. *Dry banks.*

Potentil'la ver'na (22). Spring Cinquefoil. 4—6. Stem ascending, radical (486) leaves of 5 truncate hairy leaflets, flowers ½ inch diameter. [G. (*Stainforth*, *Moughton*, *Kelcowe Wood.*)

Potentil'la alpes'tris (14). Alpine Cinquefoil. 6—7. Differs little from (487) P. verna, but is of more upright growth and has larger flowers, leaflets not truncate, flowers 1 inch in diameter. [G. (*Gordale*, *Malham.*)

POTENTIL'LA REP'TANS (89). Creeping Cinquefoil. 6—9. Stem (490) slender creeping and rooting, leaves digitate, leaflets 5 rarely 3, flowers solitary, petals 5. *Meadows and waysides.*

POTENTIL'LA TORMENTIL'LA (112). Tormentil. 6—8. Stem (488) slender rarely rooting, leaves digitate, leaflets 3 rarely 5, flowers usually in cymes, petals usually 4. . *Moors and heathy places.*

POTENTIL'LA COMAR'UM (99). 6—7. Stems decumbent purple, (495) leaves pinnate, flowers purplish brown, petals small. *Marshes.*

POTENTIL'LA PROCUM'BENS (69). 7. Rootstock woody, leaves (489) ternate, leaflets obovate trifid, petals 5—7, small yellow. *Stony places.*

POTENTIL'LA ARGENT'EA (57). 6—7. Stems 6—18 inches (493) slender, branched lower leaves petiolate, upper leaves sessile, 5-foliolate leaflets cut, hoary beneath **cuneate,** flowers small yellow. *Dry pastures.*

X.—*POTERIUM.*

POTE'RIUM SANGUISOR'BA (70). Salad Burnet. 6—8. Flowers (503) monœcious in a roundish head, upper flowers bearing crimson-tufted pistils, lower ones stamens, calyx 4-cleft, petals 0, stamens many with long weak filaments, achenes 2, leaves pinnate, leaflets ovate serrate 5—10 pairs. *Dry pastures.*

XI.—*SANGUISORBA.*

SANGUISOR'BA OFFICINA'LIS (62). Great Burnet. 6—8. Calyx (505) 4-lobed superior purple, petals 0, stamens 4, filaments not longer than the calyx, achenes 2, flowers in a cylindric head, leaves pinnate, leaflets 3—5 pairs. *Moist meadows.*

XII.—*ALCHEMILLA.*

Flowers minute in dense cymes, calyx 4—5 cleft its tube nearly closed by the disk, petals 0, stamens 1—4, achenes 1—2 enclosed in the calyx tube.

ALCHEMIL'LA VULGA'RIS (101). Lady's Mantle. 5—8. Leaves (498) entire reniform lobed plaited, flowers in terminal panicles. *Hilly pastures.*

ALCHEMIL'LA ARVEN'SIS (108). Parsley-Piert. 5—8. Leaves (497) small trifid pubescent, lobes cut, flowers minute in sessile axillary heads. *Fields and waste places.*

Alchemilla alpina (27). 6—8. Leaves divided nearly to the base into 5—7 (499) almost entire segments silvery underneath, flowers minute corymbose. [S. (*Cautley Spout*).

XIII.—*CRATÆGUS.*

CRATÆ'GUS OXYACAN'THA (110). Hawthorn, May. 5—6. Calyx (534) 5-lobed, segments short acute, petals 5, stamens many, styles 1—6, fruit red oval or round enclosing bony stones, leaves variable lobed crenate, stipules leafy. *Woods and hedges.*

XIV.—*PYRUS.*

Calyx 5-toothed, petals 5 large roundish, stamens many, styles 2, 3, or 5, fruit fleshy with 5 cartilaginous 2-seeded cells.

Flowers in sessile umbels, ... P. Malus.
Flowers in corymbs, 262

262 Leaves pinnate, ... P. Aucuparia.
262 Leaves ovate, 263
263 Fruit brownish green, older leaves glabrous, 264
263 Fruit red, leaves white or flocculent beneath, . . . P. Aria.
264 Leaves entire, ... P. communis.
264 Leaves pinnatifid, ... P. torminalis.

PY'RUS MA'LUS (84). Crab apple. 5—6. Leaves ovate serrate, (532) flowers in sessile umbels, styles united below, fruit 1 inch in diameter yellow. *Woods and hedges.*

Py'rus tormina'lis (47). Wild service. 4—5. Leaves lobed serrate downy (524) beneath when young but glabrous when mature, fruit ⅓ inch in diameter brownish green spotted. [G. (*Horton*), H.

PY'RUS AUCUPA'RIA (106). Mountain Ash. 5—6. Leaves pinnate, (530) leaflets serrate 6—8 pairs, flowers white in corymbs, berries red ⅓ inch in diameter. *Woods.*

Py'rus commu'nis (49). Pear. Leaves simple, flowers large white, styles (531) long distinct, fruit pear-shaped. [H. F.

Py'rus A'ria (46). White Beam-tree. 5—6. Leaves very variable simple (525) and coarsely serrate or more or less pinnatifid white and flocculent beneath, flowers white in corymbs, fruit red spotted ½ inch in diameter. [G. (*Malham Cove*), Tb.

ORDER 24.—Onagraceæ.

Calyx gamosepalous, superior of 4 or 2 sepals. Corolla polypetalous of 4 or 2 petals. Stamens 2, 4, or 8 perigynous, pollen triangular. Pistil syncarpous inferior of 4 carpels.

Stamens 2, ... Circæa II.
Stamens 8, ... Epilobium I.

I.—*EPILOBIUM.*

Ovary elongated 4-cornered many-seeded, seeds with a tuft of hairs, stamens 8.

Flowers irregular, ... E. angustifolium.
Flowers regular, 265
265 Stigma 4-cleft, 266
265 Stigma undivided, 267
266 Leaves opposite, 268
266 Leaves mostly alternate, ... E. parviflorum.

267 Plant under 6 inches high, ... E. alpinum.
267 Plant ½ foot to 2 feet high, 269
268 Stem nearly simple, leaves glabrous, ... E. montanum.
268 Stem much-branched, leaves hairy, ... E. hirsutum.
269 Stem square, ... E. tetragonum.
269 Stem round, ... E. palustre.

EPILO'BIUM ANGUSTIFO'LIUM (92). Rose-bay Willow-herb. (590) 7—8. Stem 4—6 feet high round erect, leaves lanceolate alternate, flowers irregular in a tall raceme. *Copses.*

EPILO'BIUM PARVIFLO'RUM (101). Small-flowered Willow- (593) herb. 7—8. Stem cylindric downy, leaves sessile lanceolate mostly alternate. *Ditches and river-banks.*

Epilo'bium alpi'num (21). Alpine Willow-herb. 7—8. Stem 2—4 inches (603) high, leaves opposite elliptic-oblong entire or toothed. [G. (*Ingleborough.*)

EPILO'BIUM MONTA'NUM (112). Broad smooth-leaved Willow- (594) herb. 6—7. Stem slender nearly simple, leaves ovate toothed petiolate opposite glabrous. *Banks and walls.*

EPILO'BIUM HIRSU'TUM (93). Great hairy Willow-herb. 7—8. (592) Stem 4—5 feet high branched, leaves hairy lanceolate opposite amplexicaul. *Watery places.*

EPILO'BIUM TETRAG'ONUM (82). Square-stalked Willow-herb, (597, 7—8. Stem square 1—2 feet high, leaves lanceolate sessile, lower 598) leaves opposite. *Watery places.*

EPILO'BIUM PALUS'TRE (104). Narrow-leaved Willow-herb. (600) 7—8. Stem round 6—18 inches high, leaves sessile lanceolate opposite. *Bogs and ditches.*

II.—*CIRCÆA.*

CIRCÆ'A LUTETIA'NA (97). Enchanter's Nightshade. 6—8. Calyx (607) 2-cleft, petals 2, stamens 2, stigma 2-lobed, stem erect, pubescent, leaves ovate acuminate, flowers in a raceme, small pinkish white, fruit covered with hooked bristles, 2-seeded. *Damp woods.*

Circæ'a alpi'na (27). 7—8. Quite glabrous (except fruit), leaves glossy (608) deeply toothed, fruit 1-seeded. [N.

To this Order belong the garden flowers *Fuchsia* and *Evening Primrose* (*Œnothera biennis*).

ORDER 25.—Haloragaceæ.

Calyx superior limb minute. Petals minute or wanting. Stamens 4 or 8 or only 1. Flowers sometimes monœcious. Ovary of 2 to 4 carpels. Styles separate. Mostly aquatic plants with insignificant flowers.

Leaves entire, 270
Leaves cut, ... Myriophyllum II.
270 Leaves whorled, ... Hippuris I.
270 Lower leaves opposite, ... Callitriche III.

I.—*HIPPURIS.*

HIPPU'RIS VULGA'RIS (86). Mare's Tail. 6—7. Perianth single
(577) superior forming a mere rim to the ovary, stamen 1, style 1, leaves linear 6—8 in a whorl, stem erect jointed. *Ditches.*

II.—*MYRIOPHYLLUM.*

Monœcious. *Staminate flowers*, calyx 4-lobed, petals 2 or 4, stamens 8. *Pistillate flowers*, calyx with 4 minute lobes, petals minute, ovary 4-celled, styles 4, leaves whorled finely pectinate.

Bracts longer than the flowers, ... M. verticillatum.
Bracts not longer than the flowers, ... M. spicatum.

MYRIOPHYL'LUM SPICA'TUM (65). 6—8. Bracts small, spike
(579) protruding from the water. *Ponds and ditches.*

Myriophyl'lum verticilla'tum (49). 7—8. Bracts pinnate like the leaves
(578) longer than the flowers, spike submerged. [W.

III.—*CALLITRICHE.*

CALLI'TRICHE VER'NA (93). Water Star-wort. 4—9. Leaves
(581-584) opposite, flowers monœcious minute axillary. *Staminate flowers*, stamen 1. *Pistillate flowers*, ovary sessile, styles 2, upper leaves in a rosette. *Ditches.*

ORDER 26.—Lythraceæ.

Calyx gamosepalous inferior ribbed, teeth 8—12. Corolla polypetalous, perigynous. Petals 4—6, sometimes 0. Stamens usually 6 or 12, perigynous. Pistil syncarpous of 2 carpels. Style 1. Stigma 1. Leaves entire without stipules.

Calyx cylindrical, style long, ... Lythrum I.
Calyx campanulate, style short, ... Peplis II.

I.—*LYTHRUM.*

LY'THRUM SALICAR'IA (92). Purple Loose-strife. 7—9. Calyx (587) with 8—12 teeth alternate ones longer and spreading, stamens 6 long and 6 short, stem erect 2—5 feet, leaves opposite lanceolate, flowers purple whorled in a tall spike. *Watery places.*

II.—*PEPLIS.*

PEP'LIS POR'TULA (95). Water-Purslane. 7—8. Calyx campanulate (589) with 12 teeth alternate ones small, petals 6 often wanting, stamens 6, style very short, stem rooting in the mud creeping 6—10 in., leaves opposite obovate, flowers small purple axillary solitary. *Wet places.*

ORDER 27.—Cucurbitaceæ.

Flowers monœcious or diœcious. Calyx gamosepalous superior 5-toothed. Petals 5. Stamens 3 or 5. Ovary 1-celled with 3 parietal placentas. Fruit fleshy 1-celled many-seeded.

BRYONIA.

BRYO'NIA DIOI'CA (59). Bryony. 5—9. A climbing herb with (609) greenish diœcious flowers, leaves palmately 5-lobed, stems many angled, tendrils simple, staminate flowers in racemose corymbs, corolla rotate 5-partite, stamens 3 rarely 5, pistillate flowers in umbels, ovary globose, style trifid, berries red. Poisonous. *Hedges and thickets.*

ORDER 28.—Portulacaceæ.

Calyx of 2 sepals united at the base. Pistils usually 5 united at the base. Stamens 3 or more. Ovary 1-celled. Style short. Stigmas several. Herbs with succulent leaves.

Stamens 5, ... Claytonia.
Stamens 3, ... Montia.

I.—*CLAYTONIA.*

CLAYTO'NIA PERFOLIA'TA. 5—7. Radical leaves broadly ovate (254) petiolate, cauline leaves 2 sessile connate into an orbicular blade, flowers small white in terminal racemes. [N.

II.—*MONTIA.*

MON'TIA FONTA'NA (107). Water-blinks. 4—8. Leaves opposite (255) spathulate somewhat succulent, flowers minute white, capsule globular 3-seeded.

ORDER 29.—Grossulariaceæ.

Calyx gamosepalous superior of 4 or 5 sepals. Corolla polypetalous, petals 5 minute. Stamens 5 short perigynous. Pistil syncarpous. Ovary 1-celled. Style 2 to 4 cleft. Placentas 2, parietal, ovules many. Fruit a berry crowned with the remains of the calyx. Seeds numerous, suspended amongst the pulp of the berry by long threads.

I.—*RIBES.*

Stems spiny, ... Ribes Grossularia.

Stems without spines, 271

271 Berries red, 272

271 Berries black, ... R. nigrum.

272 Calyx downy, bracts shorter than flowers, . . . R. rubrum.

272 Calyx glabrous, bracts longer than flowers, . . . R. alpinum.

RI'BES NI'GRUM. Black-Currant. 4—5. Flowers perfect small
(559) green in pendulous racemes, leaves glandular, calyx pubescent segments revolute, berries black larger than those of R. rubrum and R. alpinum. *Woods.*

RI'BES RU'BRUM. Red-Currant. 4—5. Flowers perfect in racemes
(558) pendulous or erect, calyx downy segments spreading, berries red. *Woods.*

Ri'bes alpi'num (32). Mountain-Currant. 4—5. Flowers diœcious in
(557) erect racemes, calyx glabrous segments spreading, berries red. [G. (*Gordale, Stainforth Wood*).

RI'BES GROSSULA'RIA. Wild Gooseberry. 3—5. Spines 1, 2,
(556) or 3 under the leaf-buds, peduncles short hairy 1—3 flowered. *Hedges.*

ORDER 30.—Crassulaceæ.

Calyx gamosepalous, inferior. Sepals usually 5. Corolla polypetalous, petals equal in number to the sepals. Stamens as many as the petals or twice that number, perigynous. Pistil syncarpous, carpels equal in number to the petals, separating from each other so that the pistil seems to be apocarpous. Fruit of several follicles. Leaves succulent.

Corolla polypetalous, 273

Corolla gamopetalous, ... Cotyledon II.

273 Petals 5 or 4, ... Sedum I.

273 Petals 10 or 12, ... Sempervivum III.

I.—*SEDUM.*

Sepals 5, cohering at the base, petals 5 spreading, stamens 10, leaves fleshy, flowers in cymes.

Flowers yellow, 274
Flowers white or pink, 275
274 Leaves flat, ... S. Rhodiola.
274 Leaves roundish, 276
275 Leaves flat, flowers purple, ... S. Telephium.
275 Leaves roundish, flowers white, 277
276 Leaves short erect, closely imbricated, . . S. acre.
276 Leaves linear spreading, ... S. sexangulare.
276 Leaves spreading, lower ones reflexed, . S. reflexum.
277 Stem hairy, ... S. villosum.
277 Stem glabrous, 278
278 Leaves oblong, ... S. album.
278 Leaves ovoid, ... S. anglicum.

Se'dum Rhodi'ola (37). Rose-root Stone-crop. 6—7. Stem simple less (562) than 1 foot high, leaves flat oblong toothed glabrous alternate sessile closely set, flowers yellow dicœcious, stamens 8, petals and carpels 4. [G. (*Pennyghent, Ingleborough.*)

SE'DUM TELE'PHIUM (75). Orpine Live-long. 7—8. Stems (563) ½ foot to 2 feet stout green or spotted with red, leaves flat oblong toothed nearly sessile, flowers perfect purple in dense corymbose cymes, petals 5, stamens 10. *Waysides.*

Se'dum villo'sum (29). Hairy Stone-crop. 6—7. Stem 3—4 inches high (564) erect simple, leaves roundish linear alternate scattered, flowers few pale rose-coloured, stem and leaf pubescent. [G. (*Ryeloaf, Swarth Moor.*)

SE'DUM AL'BUM. White Stone-crop. 7—8. Stem prostrate below, (565) flowering stem erect 3—5 inches high, leaves scattered obtuse spreading, flowers pinkish white in a crowded panicle. *Walls.*

SE'DUM A'CRE (104). Biting Stone-crop. 6—7. Stems 3—8 inches (568) high in tufts or cushions, leaves fleshy erect short closely imbricated on the flowerless stem, flowers yellow in a trifid panicle. *Walls and roofs.*

SE'DUM SEXANGULA'RE. Tasteless Mountain Stone-crop. 7—8. (569) Stems in loose tufts, flowerless stems with crowded cylindric leaves in about 6 rows, flowering stem with spreading leaves in a corymbose panicle. [G. (*Malham.*)

SE'DUM REFLEX'UM. Crooked Stone-crop. 7—8. Stem 6—8 inches (570) high with spreading cylindric subulate leaves the lower ones recurved, flowers yellow in a corymbose cyme. [G. (*Castleberg*), F.

SE'DUM ANG'LICUM (55). 6—8. Stems 3 in. decumbent much (567) branched, leaves thick almost globular, flowers white tinged with pink. *Rocks and banks.*

II.—*COTYLEDON.*

COTYLE'DON UMBIL'ICUS (53). Penny-wort. 6—7. Sepals 5 (561) small, corolla campanulate with 5 teeth, stamens 10, flowering stem erect 6—12 in. bearing a long raceme of pendulous greenish yellow flowers, leaves peltate orbicular crenate. *Rocks and walls.*

III.—*SEMPERVIVUM.*

Sepals usually 12, stamens 12 (with 12 imperfect ones).

SEMPERVI'VUM TECTO'RUM. House-leek. 6—7. Barren shoots (573) densely covered with ovate lanceolate ciliate leaves in a rose-like tuft, flowering stem stout with scattered leaves, leaves fleshy, flowers ²—1 inch diameter purple, petals lanceolate ciliate. *Roofs.*

ORDER 31.—Saxifragaceæ.

Calyx gamosepalous superior or inferior. Corolla polypetalous. Petals 5. Stamens 5—10 perigynous. Pistil syncarpous of 2 carpels diverging at the apex. Stigmas sessile. Ovules numerous. Leaves simple (entire or divided) alternate exstipulate.

Petals none, ... Chrysosplenium II.

Petals 5, 279

279 Stamens 5, capsule 1-celled, ... Parnassia III.

279 Stamens 10, capsule 2-celled, . . . Saxifraga I.

I.—*SAXIFRAGA.*

Calyx 5-lobed, petals 5, stamens 10, leaves more or less cut, capsule with 2 beaks 2-celled many seeded.

Flowers yellow, ... S. aizoides.

Flowers white or pink, 280

280 Calyx reflexed, flowers in panicles, 281

280 Calyx spreading, 282

281 Leaves orbicular or reniform, ... S. Geum.

281 Leaves obovate or wedge-shaped, 283

282 Leaves divided, 284

282 Leaves not divided, ... S. oppositifolia.

283 Filaments subulate, panicles few-flowered, ... S. stellaris.

283 Filaments broader at the top, panicle many-flowered, . S. umbrosa.

284 Stem erect, 285

284 Stem tufted moss-like, ... S. hypnoides.

285 Radical leaves reniform lobed, ... S. granulata.

285 Leaves wedge-shaped trifid, ... S. tridactylites.

Saxif'raga Ge'um. Kidney-leaved Saxifrage. 6—7. Leaves orbicular
(539) or reniform toothed hairy, stem 6—12 inches high slender, petioles hairy channelled above, flowers white. [G. (*Wethercote*, *Ingleborough.*)

Saxif'raga umbro'sa. London Pride. 6—7. Leaves obovate crenate in
(541) a compact rosette, crenatures cartilaginous, flowers in panicles white spotted with purple. *Common in cultivation.* [G. (*Ling gill.*)

Saxif'raga stella'ris (38). Starry Stone-crop. 7—8. Leaves nearly sessile
(538) wedge-shaped serrate in a rosette, flowers white, cyme few-flowered. [G. (*Ingleborough*), S.

Saxif'raga aizoi'des (32). Yellow Mountain Saxifrage. 6—9. Flowering
(543) stem leafy, lower leaves crowded, leaves linear lanceolate alternate ciliate, flowers yellow spotted with orange. [G. *Ingleborough*, *Hunt pot.*)

Saxif'raga oppositifo'lia (28). Purple Mountain Saxifrage. 4—5. Stems
(536) tufted, leaves ovate opposite imbricated ciliate, flowers large purple solitary terminal. [G. (*Pennyghent*, *Ingleborough*, *Malham.*)

SAXIF'RAGA GRANULA'TA (75). Meadow Saxifrage. 5—6. Leaves
(547) reniform lobed, lower ones with long petioles, upper ones nearly sessile, flowers large white. *Meadows.*

SAXIF'RAGA TRIDACTYLI'TES (81). Rue-leaved Saxifrage.
(544) 4—7. Stem erect 2—4 inches high, leaves alternate wedge-shaped trifid, upper ones entire. *Walls.*

Saxif'raga hypnoi'des (46). Mossy Saxifrage. 5—7. Flowering stem
(552) erect, flowerless stems procumbent with wedge-shaped trifid leaves in tufts often forming large cushions. [G. (*Winskill Scar*), S.

II.—*CHRYSOSPLENIUM.*

Flowers minute green or yellow, calyx superior 4—5 cleft, petals 0, stamens 8—10, capsule 1-celled with 2 beaks.

CHRYSOSPLE'NIUM OPPOSITIFO'LIUM (104). Golden Saxi-
(553) frage. 4—7. Leaves cordato-orbicular crenate opposite. *Marshy places.*

CHRYSOSPLE'NIUM ALTERNIFO'LIUM (67). Alternate-leaved
(554) golden Saxifrage. 4—7. Leaves alternate reniform crenate, lower ones with long petioles. *Wet places.*

III.—*PARNASSIA.*

PARNAS'SIA PALUS'TRIS (81). Grass of Parnassus. 8—9. Petals
(555) 5, stamens 5 alternating with 5 staminodes each with a fan-shaped fringe of white gland-tipped filaments, leaves ovato-cordate, flowers solitary terminal white, petals veined. *Wet moors and bogs.*

ORDER 32.—Droseraceæ.

Sepals 5 persistent. Corolla regular. Petals 5. Stamens 5 almost hypogynous. Ovary 1-celled. Styles 6—8. Placentation parietal.

I.—*DROSERA.*

DROS'ERA ROTUN'DIFO'LIA (107). Sundew. 7—8. Leaves obo-
(574) vate covered with red glandular hairs. *Bogs.*

ORDER 33.—Araliaceæ.

Calyx superior entire or 5-toothed Petals usually 5. Stamens 5—10 from the margin of an epigynous disk. Ovary more than 2-celled. Ovules solitary pendulous.

I.—*HEDERA.*

HED'ERA HE'LIX (111). Ivy. 10—11. Calyx of 5 teeth, petals 5
(679) reflexed, styles 5 growing together, fruit a black berry with 3—10 seeds, leaves very variable cordate 5-lobed, those of the flowering branches lanceolate or ovate, flowers greenish-yellow in a racemose umbel. *Walls.*

ORDER 34.—Umbelliferæ.

Calyx gamosepalous superior, entire or 5-toothed. Petals 5 inserted on an epigynous disk. Stamens 5 epigynous. Pistil syncarpous of 2 carpels. Styles 2. Flowers in umbels usually compound, the bracts at the base of the compound umbel constitute the *involucre*, and those (*bracteoles*) at the base of the separate umbels the *partial involucres*. Fruit a *cremocarp* consisting of 2 carpels (*mericarps*) suspended by the apex from a common axis, each carpel marked by elevated ridges, between which in the substance of the pericarp are certain linear canals containing oil, termed *vittæ*. The fruit is *dorsally* compressed when the division between the mericarp is in the longest diameter of the cremocarp, and *laterally* compressed when the division (*suture*) is in the shortest diameter.

Umbels simple, 289
Umbels compound, 286

286 Leaves and stem thick and succulent, . . Crithmum XXX.
286 Leaves not succulent, 287
287 Fruit prickly, 291
287 Fruit not prickly, 288
288 Leaves simple, ... Bupleurum VI.
288 Leaves compound, 292
289 Leaves undivided, ... Hydrocotyle I.
289 Leaves palmate, 290
290 Flowers white, ... Sanicula III.
290 Flowers blue—leaves prickly, ... Eryngium IV.

291 Fruit not ribbed, ... Torilis XXI.
291 Fruit with prominent ribs, ... Daucus XX.
292 Lower leaves pinnate alternate, 293
292 Leaves bi- or tri-pinnate or bi- or tri-ternate, 294
293 Fruit laterally compressed, 295
293 Fruit dorsally compressed, . . . Heracleum XIX.
294 Fruit beaked, 299
294 Fruit not beaked, 300
295 Leaves ternate, ... Apium VIII.
295 Leaves pinnate, 296
296 Involucre absent, 297
296 Involucre present, 298
297 Petals entire, ... Helosciadum IX.
297 Petals notched, ... Pimpinella XI.
298 Umbels of few (5) rays, ... Sison XXVIII.
298 Umbels of many (10—20) rays, ... Sium XII.
299 Beak long, ... Scandix XXII.
299 Beak shorter than the fruit, . . . Anthriscus XXIV.
300 Fruit narrow-linear, 301
300 Fruit ovate or oblong, 302
301 Vittæ none, ... Myrrhis XXVI.
301 Vitta 1 in each interstice, . . . Chærophyllum XXV.
302 Fruit round, 303
302 Fruit compressed, 305
303 Vittæ none, 307
303 Vittæ 1 in each interstice, 308
303 Vittæ 2 or more in each interstice, 304
304 Leaflets broad, ... Smyrnium II.
304 Leaflets narrow, 304*
305 Fruit dorsally compressed, 306
305 Fruit laterally compressed, ... Bunium X.
306 Lateral wings touching, flowers yellow, . . Pastinaca XVIII.
306 Lateral wings separate, flowers white, 306*
307 Ridges obscure, 309
307 Ridges thick waved, ... Conium V.
308 Style long, 311
308 Style short, 310
304* Flowers yellowish, ... Silaus XVI.
304* Flowers white or pink, ... Meum XXXI.
306* Leaves ternate or bi-ternate, . . . Peucedanum XXXII.
306* Leaves bi-pinnate, ... Angelica XVII.

309 Leaflets of upper leaves ovate or lanceolate, *Ægopodium* XXIX.
309 Leaflets of upper leaves linear, . . Coriandrum XXVII.
310 Bracteoles present, 312
310 Bracteoles absent, ... Fœniculum XXIII.
311 Fruit longer than broad, ... Œnanthe XIII.
311 Fruit broader than long, ... Cicuta VII.
312 Bracteoles long reflexed, ... *Æthusa* XV.
312 Bracteoles short, ... Carum XIV.

I.—*HYDROCOTYLE.*

HYDROCOT'YLE VULGA'RIS (109). White-rot, Marsh-Penny-wort.
(610) 5—8. Leaves orbicular peltate crenate, peduncles shorter than petioles, stem creeping, flowers greenish about 5 in a head. *Bogs.*

II.—*SMYRNIUM.*

SMYRN'IUM OLUSA'TRUM (62). Alexanders. 4—6. Stem erect
(618) 2—4 ft. stout, lower leaves bi- or tri-ternate, cauline leaves petiolate ternate serrate, umbels compound terminal of 8 to 12 rays, bracts and bracteoles absent, flowers yellow, fruit ovoid, each carpel with 3 prominent angular ribs and several vittæ between the ribs. *Waste places.*

III.—*SANICULA.*

SANIC'ULA EUROPÆ'A (104). Wood Sanicle. 6—7. Radical
(614) leaves on long petioles palmate, lobes trifid serrate, fruit ovate densely covered with hooked prickles. *Copses.*

IV.—*ERYNGIUM.*

ERYN'GIUM MARIT'IMUM (50). Sea-Holly. 7—8. Glaucous, leaves
(611) spinous palmate amplexicaul, flowers bluish-white sessile in dense heads surrounded at the base by a whorl of rigid bracts. [T.

V.—*CONIUM.*

CONI'UM MACULA'TUM (101). Hemlock. 6—7. Leaves pinnately
(617) compound, stem 2—4 ft. high glabrous hollow spotted with purple much-branched, carpels with 5 prominent waved ribs without vittæ, partial involucres unilateral. *Waste places.*

VI.—*BUPLEURUM.*

Bupleu'rum rotundifo'lium (39). Hare's Ear. 6—7. Stem fistular erect
(619) stiff 1 ft., leaves entire broadly ovate, upper cauline leaves perfoliate, umbels terminal of 3—5 short rays, bracts 0, bracteoles 3—5 yellowish ovate leafy longer than the rays, flowers yellow, fruit round, each carpel with 5 ribs and several vittæ. [W. Tb.

VII.—*CICUTA.*

Cicu'ta viro'sa (32). Cowbane. 7—8. Root fibrous, stem 2—4 ft.
(627) stout furrowed leafy, leaves large 2—3 pinnate, leaflets lanceolate doubly-serrate, umbels compound 3—5 in. diameter, rays many long slender, bracts 0, bracteoles short, flowers minute white, fruit orbicular each carpel with 5 scarcely prominent broad flat ribs and single vittæ between. [L.

VIII.—*APIUM.*

A'PIUM GRAVE'OLENS (55). Celery. 6—8. Stem 2 ft. high fur-
(624) rowed, leaves pinnate or ternate, umbels shortly peduncled or sessile, carpels with 5 slender prominent ribs and single vittæ between them, involucre none. *Salt marshes.*

IX.—*HELOSCIADIUM.*

Leaves pinnate or ternate, umbels compound, bracts 0, bracteoles many, fruit broadly ovoid, carpels 5-angled, ribs prominent with single vittæ between.

Leaflets numerous, ... H. nodiflorum.

Leaflets of aerial leaves few, submerged leaves bi- or tri-

pinnate, ... H. inundatum.

HELOSCIA'DIUM INUNDA'TUM (91). Lesser Marsh-wort. 6—7.
(626) Decumbent or floating, submerged leaves 2—3 pinnate with capillary floating leaflets, aerial leaves pinnate with deeply trifid leaflets. *Wet places.*

HELOSCIA'DIUM NODIFLO'RUM (82). Procumbent Marsh-wort.
(625) 7—8. Stem creeping, leaves pinnate, leaflets 5—9 ovate serrate. *Marshy places.*

X.—*BUNIUM.*

BU'NIUM FLEXUO'SUM (104). Earth-nut. 5—6. Leaves triternate
(640) segments linear, involucres absent, root a brown tuber as large as a chestnut, fruit narrow oblong crowned by the conical bases of the styles, carpels with 5 obscure ridges and 2—3 vittæ between, suture without vittæ. *Pastures.*

XI.—*PIMPINELLA.*

Fruit ovate, ridges obscure, interstices occupied by 2—3 long vittæ, suture with vittæ, leaves pinnate or bi-pinnate.

PIMPINEL'LA SAXIF'RAGA (99). Burnet Saxifrage. 7—9. Radical
(638) leaves pinnate leaflets roundish serrate, cauline leaves bi-pinnate segments narrow, stem round. *Dry pastures.*

Pimpinel'la mag'na (50). Greater Burnet Saxifrage. 7—8. Stem angular,
(639) leaves all pinnate, leaflets ovate serrate.
[G. (*Ribble below Settle Bridge.*)

XII.—*SIUM.*

Leaves pinnate, leaflets toothed, umbels compound, bracts and bracteoles many, fruit ovoid or oblong with 5 somewhat blunt ridges and many vittæ between.

Leaflets of stem leaves regularly serrate, . . . S. latifolium.
Leaflets of stem leaves irregularly serrate, . . . S. angustifolium.

Si'um latifo'lium (40). Broad-leaved Water-Parsnip. 7—8. Stem 5—6 feet,
(635) leaflets 6—10 pairs regularly serrate. [Nt.

SI'UM ANGUSTIFO'LIUM (76). Water-Parsnip. 7—8. Stem erect
(636) 1—3 ft. high, leaflets of cauline leaves unequally lobed serrate. *Wet places.*

XIII.—*ŒNANTHE.*

Fruit long surmounted by the long nearly straight styles, ribs blunt with single vittæ between.

Leaflets of upper leaves few linear, 313
Leaflets of upper leaves many broad, 314

313 Stem hollow, ... Œ. fistulosa.
313 Stem nearly solid, ... Œ. Lachenalii.
314 Umbels terminal, ... Œ. crocata.
314 Umbels lateral, ... Œ. Phellandrium.

ŒNAN'THE FISTULO'SA (65). Water Dropwort. 7—9. Root
(651) fibres slender, leaves pinnate, segments few narrow distant, stem 2—3 ft. high, peduncles stout, whole plant remarkably fistular. *Ditches.*

ŒNAN'THE CROCA'TA (89). Hemlock Dropwort. 7. Root fibres
(655) ½—¾ inch thick, stem 2—5 ft. high stout much-branched fistular, leaflets broad wedge-shaped cut. *Marshes and ditches.*

ŒNAN'THE LACHENA'LII (70). Parsley Dropwort. 7—9. Root
(654) fibres cylindric, leaves bi-pinnate. *Fresh and salt marshes.*

ŒNAN'THE PHELLAN'DRIUM (56). Fine-leaved Dropwort. 7—9.
(656) Stem 1—4 ft. very stout erect creeping or floating, leaves bi- or tri-pinnate, segments finely cut capillary when submerged.

XIV.—*CARUM.*

Leaves bi- or tri-pinnate, umbels compound, flowers white or yellow, fruit ovoid or oblong, carpels 5-angled, ridges obtuse, vittæ usually single between the ribs.

Ca'rum bulbocast'anum (4). Pignut. 6—7. Root a solitary tuber, leaves
(633) tri-pinnate, flowers white, involucre of a few fine bracts. [H.

C. Carui (Caraway) and *C. petroselinum* (common parsley), cultivated in gardens, are occasionally found in waste places.

XV.—*ÆTHUSA.*

ÆTHU'SA CYNA'PIUM (91). Fools' Parsley. 7—8. Fruit broadly
(658) ovate with 5 acute ribs with single vittæ between, stem 1—1½ ft. high branched very leafy, leaves bi-pinnate, segments variously cut, umbels on long stalks, partial umbels small distant each with 3 pendulous unilateral bracteoles. *Waste places.*

XVI.—*SILAUS.*

SILA'US PRATEN'SIS (65). Pepper-saxifrage. 6—9. Fruit oval
(660) with acute ribs and many vittæ between, suture with vittæ, leaves tri-pinnate, leaflets linear lanceolate, stem 1—3 ft. high, flowers dull yellow surmounting a long peduncle, leaves mostly radical. *Meadows and commons.*

XVII.—*ANGELICA.*

ANGEL'ICA SYLVES'TRIS (110). Wild Angelica. 7—8. Carpels
(664) with 3 dorsal ribs and the 2 lateral ones expanded into broad wings, stem 1—5 ft. high stout fistular purplish, leaves bi-pinnate, leaflets large ovate serrate, umbels 1—3 inches across. *Moist woods.*

XVIII.—*PASTINACA.*

PASTINA'CA SATI'VA (57). Wild Parsnip. 7—8. Fruit flat with a
(669) broad border, ribs 3 dorsal and 2 at the edges of the border, petals acuminate inflected, stem 2—3 ft. high furrowed, leaves pinnate downy beneath, leaflets ovate serrate, terminal leaflets 3-lobed, root fusiform, flowers yellow. *Waste places.*

XIX.—*HERACLEUM.*

HERAC'LEUM SPHONDYL'IUM (110). Cow-Parsnip. 7. Fruit
(670) flat with a broad border, ribs 3 dorsal 2 marginal with short club-shaped vittæ between, petals obcordate inflected, leaves pinnate rough hairy, leaflets pinnatifid, stem 4—5 ft. high furrowed, flowers large white, outer ones very irregular. *Waste places.*

XX.—*DAUCUS.*

DAU'CUS CARO'TA (106). Wild Carrot. 6—8. Fruit slightly com-
(672) pressed dorsally, each carpel with 3 dorsal ribs and 2 in the inner face and single vittæ between the dorsal ribs, and at each end of the carpel a row of long flat prickles, the four rows of prickles being much more prominent than the ribs, stem 1—2 ft. high branched furrowed solid, leaves tri-pinnate, leaflets pinnatifid. *Pastures.*

XXI.—*TORILIS.*

Fruit slightly compressed laterally densely clothed with curved prickles in 4 rows, ribs inconspicuous bristly, leaves bi-pinnate, leaflets pinnatifid.

Umbels compound, 315
Umbels simple, ... T. nodosa.
315 Leaflets broad, ... T. anthriscus.
315 Leaflets narrow, ... T. infesta.

TORI'LIS ANTHRIS'CUS (106). Hedge Parsley. 7—9. Leaflets (677) broad, bracts 4—6, spines of fruit uncurved not hooked, umbels terminal compound. *Hedges.*

TORI'LIS INFES'TA (57). 7—9. Leaflets narrow, umbels terminal (676) compound, spines of fruit spreading hooked. *Fields and waste places.*

TORI'LIS NODO'SA (71). 5—9. Leaflets very small, umbels small (678) leaf-opposed simple, spines of fruit spreading hooked and barbed. *Dry banks.*

XXII.—*SCANDIX.*

SCAN'DIX PECTEN-VEN'ERIS (88). Shepherd's Needle. 6—9. (643) Fruit with a long beak sometimes 2 or 3 inches long, stem 4—12 inches high, leaves tri-pinnate. *Cornfields.*

XXIII.—*FŒNICULUM.*

Fœnic'ulum vulga're (32). Fennel. 7—8. Stem erect branched 2—3 ft., (648) leaves tri-pinnate, leaflets linear, flowers minute yellow in compound terminal umbels of 15—20 rays, fruit oblong terete ridges stout vittæ solitary in the interstices conspicuous.

[T. W. Tb. L. Nt. F.

XXIV.—*ANTHRISCUS.*

Fruit with a short beak, carpels terete.

ANTHRIS'CUS SYLVES'TRIS (102). Wild Beaked-Parsley. 4—6. (645) Stem 3—4 ft. high hairy below, umbels terminal, fruit glabrous, leaves tri-pinnate. *Waysides.*

ANTHRIS'CUS VULGA'RIS (96). Common Beaked-Parsley. 5—6. (644) Stem 2—3 ft. high glabrous, umbels lateral, fruit hispid, leaves tri-pinnate. *Waysides.*

A. Cerefolium or *Chervil* (common in gardens) has lateral sessile umbels and a large glabrous fruit with a beak half as long as the fruit itself.

XXV.—*CHÆROPHYLLUM.*

CHÆROPHYL'LUM TEM'ULUM (97). Rough Chervil. 6—7.
(642) Fruit elongate, carpels terete with 5 obtuse ribs and a deep furrow on the inner face, vittæ single between the ribs, stem 1—3 ft. high slender grooved rough and hairy swollen below the nodes, leaves bi-pinnate. *Waysides.*

XXVI.—*MYRRHIS.*

MYR'RHIS ODORA'TA (60). Sweet Cicely. 5—6. Fruit elongate,
(641) ribs prominent acute hollow, vittæ 0, stem 2—3 ft. high, leaves tri-pinnate triangular, whole plant (but especially the fruit) aromatic. *Pastures and river-sides.*

XXVII.—*CORIANDRUM.*

CORIAN'DRUM SATI'VUM. Coriander. 6. Fruit globose, carpels
(649) closely cohering forming a round ball marked by broad ribs, vittæ 0, stem 1—2 ft. high fistular slender, leaves bi-pinnate, upper leaves with filiform segments. *Waste places.*

XXVIII.—*SISON.*

SI'SON AMO'MUM (53). Bastard Stone-Parsley. 8—9. Stem 2—3
(634) ft. erect branched, leaves pinnate, leaflets pinnatifid, umbels compound of 3—5 rays, bracts few linear, bracteoles few, generally on one side, fruit small ovate, ridges marked. *Moist places.*

XXIX.—*ÆGOPODIUM.*

ÆGOPO'DIUM PODAGRA'RIA (100). Gout-weed. 6—8. Stem
(637) 1—2 ft. stout fistular grooved, radical leaves on long petioles triternate, umbels terminal compound of 12—20 rays, bracts and bracteoles absent, fruit ovoid, carpels 5 angled, ribs slender, vittæ 0, styles reflexed. *Waste places.*

XXX.—*CRITHMUM.*

Crith'mum marit'imum (25). Sea Samphire. 6—8. Fleshy and glabrous,
(650) stem 6—10 in., leaves bi- or tri-ternate, leaflets linear, umbels compounds, bracts and bracteoles many short, flowers minute white, fruit oblong dark green or purplish, carpels with 5 acute angles, vittæ many. [L., Nt.

XXXI.—*MEUM.*

Meum Athamanticum (26). Bald-Money. 6—7. Glabrous, aromatic,
(661) 6—18 in., leaves mostly radical finely divided, umbels terminal compound, bracts linear, bracteoles 4—8 small, flowers white or purplish. [S., G.

XXXII.—*PEUCEDANUM.*

PEUCEDANUM OSTRUTHIUM. Masterwort. 7—8. Stem 2—3 ft.
(668) stout, leaves triternate, leaflets coarsely serrate, flowers white in compound umbels, bracts none, bracteoles slender. [S.

ORDER 35.—Cornaceæ.

Shrubs with opposite exstipulate leaves, petals 4—5, stamens 4—5 inserted at the base of the epigynous disk, ovary inferior 1—4-celled, style 1, fruit a drupe with 1—4 stones.

CORNUS.

Flowers small in cymes or involucrate umbels, calyx-teeth 4 minute, petals 4, stamens 4, ovary 2-celled.

COR'NUS SANGUIN'EA (66). Dogwood. 6—7. A small tree 6—8
(681) ft., leaves ovate, flowers numerous white in terminal cymes, drupes globular black very bitter.

DIVISION II.—GAMOPETALÆ.

ORDER 36.—Caprifoliaceæ.

Calyx gamosepalous superior 5-cleft persistent. Corolla gamopetalous epigynous 4 or 5 cleft. Stamens epipetalous, equal in number to the petals and alternate with them. Pistil syncarpous usually of 3 carpels. Fruit a berry.

Shrubs, 316
Herbs, ... Adoxa II.

316 Stigmas 3, sessile, 317
316 Style 1, filiform, ... Lonicera IV.

317 Corolla rotate, leaves pinnate, . . . Sambucus I.
317 Corolla campanulate, leaves not pinnate, . Viburnum III.

I.—*SAMBUCUS.*

Corolla rotate 5-lobed, stamens 5, stigmas 3 sessile, berry 3—4-seeded.

Flowers white, ... S. nigra.
Flowers purplish, ... S. Ebulus.

SAMBU'CUS NI'GRA (106). Common Elder. 6. Flowers white in
(683) cymes with 5 main branches, leaves pinnate, leaflets ovate serrate, stipules 0, a tree 10—12 ft. high. *Woods.*

SAMBU'CUS EB'ULUS (74). Dwarf-Elder. 7—8. Flowers purplish,
(684) cymes with 3 principal branches, leaves pinnate, leaflets lanceolate serrate, stipules present, stem furrowed 2—3 ft. high. *Copses and hedges.*

II.—*ADOXA.*

ADOX'A MOSCHATELLI'NA (88). Moschatel. 4—5. Calyx 5-cleft,
(682) corolla rotate 5-cleft, stem 4—6 inches high bearing a head of 5 greenish flowers, radical leaves with long petioles tri-ternate, cauline-leaves sessile. *Shady places.*

III.—*VIBURNUM.*

Shrubs or trees with opposite branches, leaves simple, flowers in corymbs, corolla rotate tubular or campanulate 5-lobed, stamens 5, stigmas 3 sessile, fruit a drupe.

Flowers perfect, ... V. Lantana.
Outer flowers neuter, ... V. Opulus.

VIBUR'NUM OP'ULUS (75). Guelder-rose. 6—7. Leaves 5-
(685) lobed, lobes serrate, a tree 6—8 ft. high, flowers white in large cymes, outer flowers larger neuter, berries dark red. *Woods.*

Vibur'num Lanta'na (43). Wayfaring-tree. 5—6. Leaves ovate downy
(686) beneath, flowers all small perfect, berries purplish-black.
[M. Rg. T. Tb. Wl. F.

IV.—*LONICERA.*

Erect or climbing shrubs, leaves opposite entire exstipulate, flowers in peduncled cymes or heads often connate in pairs, corolla irregular, limb 5-cleft, stamens 5, style filiform, fruit a berry.

Climbers, 318
Erect shrub, ... L. Xylosteum.
318 Leaves distinct, ... L. Periclymenum.
318 Upper leaves connate, ... L. Caprifolium.

LONICE'RA PERICLY'MENUM (109). Honey-suckle. 6—9.
(689) Flowers red outside yellow within, several in a peduncled head, bracts small, leaves ovate upper ones sessile, berries crimson 2—3-celled few-seeded. *Hedges.*

LONICE'RA CAPRIFO'LIUM. 5—6. Upper leaves connate, heads
(688) terminal sessile, bracts very large connate, berries globose scarlet. *Shrubberies and hedges.*

LONICE'RA XYLOS'TEUM. Fly Honey-suckle. 5—6. Leaves petiolate,
(690) flowers yellowish white, axillary in pairs sessile, connate by the ovaries, berries small bright scarlet. *Shrubberies.*

The Snowberry (*Symphoricarpos*), common in gardens, belongs to this Natural Order.

ORDER 37.—Rubiaceæ.

Calyx gamosepalous superior entire or 4—6-lobed. Corolla regular gamopetalous epigynous 4—5-lobed. Stamens 4—5 epipetalous. Pistil syncarpous of 2 carpels. Stem 4-angled. Leaves entire whorled. Flowers minute. Fruit dicoccous.

Calyx 4-lobed, ... Sherardia II.
Calyx-limb absent, 319
319 Corolla rotate, 320
319 Corolla campanulate, ... Asperula III.
320 Corolla 5-lobed, ... Rubia IV.
320 Corolla 4-lobed, ... Galium I.

I.—*GALIUM.*

Calyx-limb a mere ring, corolla 4-lobed, stamens 4 alternate with the petals, styles 2 short.

Flowers yellow, 320
Flowers white, 321
320 Leaves 6 or 8 in a whorl linear, . . . G. verum.
320 Leaves 4 in a whorl ovate, ... G. Cruciatum.
321 Stem with reflexed bristles, 322
321 Stem without reflexed bristles, 323
322 Fruit smooth, ... G. palustre.
322 Fruit rough, 324
323 Leaves 4 in a whorl, stem erect, ... G. boreale.
323 Leaves 6—8 in a whorl, stem straggling, 325
324 Fruit with hooked bristles, 326
324 Fruit granulated, ... G. uliginosum.
325 Fruit smooth, ... G. Mollugo.
325 Fruit granulated, 327
326 Panicles shorter than the leaves, . . . G. tricorne.
326 Panicles longer than the leaves, . . . G. Aparine.
327 Leaves obovate, ... G. saxatile.
327 Leaves linear lanceolate, ... G. sylvestre.

Ga'lium tricor'ne (42). Corn Bed-straw. 6—10. Leaves 6—8 in a whorl (704) lanceolate hispid, cymes axillary 3-flowered, fruit large granulated on reflexed pedicels. [M. Rg. W. F.

GA'LIUM VE'RUM (109). Yellow Bed-straw. 6—9. Leaves 6 or 8
(694) in a whorl linear with recurved margins, flowers small yellow in dense terminal and axillary cymes. *Downs.*

GA'LIUM CRUCIA'TUM (95). Mug-wort. 4—6. Leaves 4 in a
(693) whorl ovate hairy, flowers yellow in few-flowered axillary cymes, outer flowers staminate only. *Waysides.*

GA'LIUM PALU'STRE (112). Water Bed-straw. 7—8. Stems rough
(699) prickly loose spreading, leaves 4—6 in a whorl oblong-lanceolate, margins with reflexed prickles, flowers white. *Marshy places.*

Ga'lium borea'le (42). Cross-leaved Bed-straw. 6—8. Stems erect tufted
(692) rigid, leaves 4 in a whorl lanceolate glabrous, fruit covered with hooked bristles, flowers white. [G. (*Malham Tarn, Arncliffe, Kilnsey Crag*), S.

GA'LIUM APARI'NE (112). Cleavers. 6—7. Stem straggling rough
(703) matted together, leaves 6—8 in a whorl lanceolate rough with reflexed prickles, fruit covered with hooked bristles, flowers white 3—9 in a cyme. *Hedges.*

GA'LIUM ULIGINO'SUM (89) Rough Water Bed-straw. 7—8.
(700) Stem slender rough prickly, leaves 6—8 in a whorl linear lanceolate rigid mucronate, flowers white few in a cyme. *Marshy places.*

GA'LIUM MOLLU'GO (75). Great Hedge Bed-straw. 7—8. Stem
(696) long straggling, leaves 6—8 in a whorl elliptical mucronate rough at the margin, flowers white, fruit glabrous. *Hedges.*

Ga'lium sylves'tre (22). Mountain Bed-straw. 7—8. Stems diffuse
(698) smooth, leaves 6—8 in a whorl linear lanceolate ciliate awned at the tip, fruit minutely granulate, fruiting pedicels spreading.
[G. (*Giggleswick Scar, Gordale, Malham.*)

GA'LIUM SAXAT'ILE (111). Smooth Heath Bed-straw. Stem 4—5
(697) inches high smooth prostrate tufted, leaves narrow 6 in a whorl obovate or linear-obovate mucronate. *Rocks and heaths.*

II.—*SHERARDIA.*

SHERAR'DIA ARVEN'SIS (104). Field Madder. 4—10. Calyx-
(709) limb 4—6-toothed persistent, corolla funnel-shaped lilac, limb 4-lobed, stamens 4, style bifid, leaves 4—6 in a whorl oblong-lanceolate, fruit minute dicoccous crowned by the enlarged ciliate calyx limb. *Cornfields.*

III.—*ASPERULA.*

Corolla campanulate white 4-lobed, stamens 4, styles 2, fruit rough not crowned by the calyx.

ASPER'ULA ODORA'TA (101). Woodruff. 5—6. Upper leaves
(705) 7—9 in a whorl, lower leaves 6 in a whorl lanceolate ciliate. *Shady woods.*

Asper'ula cynan'chica (37). Squinancy-wort. 6--7. Leaves 4 in a whorl
(707) linear. [M. Tb. Wl.

IV.—*RUBIA.*

Ru'bia peregri'na (23). Madder. 6—8. Stem 1—2 ft., leaves 4—6 in a
(691) whorl oblong, with recurved prickles on angles of stem midrib and margins of leaves, flowers small yellowish in cymes or panicles, corolla campanulate 5-lobed, fruit a black globose berry. [T.

ORDER 38.—Valerianaceæ.

Calyx superior, limb membranous or pappose. Corolla gamosepalous tubular 3—6-lobed epigynous. Stamens 1—5 epipetalous. Pistil syncarpous of 3 carpels. Style 1 filiform. Stigmas 1—3.

Calyx-limb pappose, 328
Calyx-limb toothed, ... Valerianella III.
328 Corolla-tube spurred, ... Centranthus I.
328 Spur absent, ... Valeriana II.

I.—*CENTRANTHUS.*

CENTRAN'THUS RU'BER. Red Valerian. 6—9. Stem 1—2 ft. bushy,
(713) leaves ovate lanceolate, flowers red in a dense terminal cyme, corolla tube compressed elongate, spurred at the base, stamen 1. [T. W.

II.—*VALERIANA.*

Corolla 5-cleft, stamens 3, fruit crowned with a feathery pappus.

VALERIA'NA OFFICINA'LIS (111). Great Wild Valerian. 6—8.
(711) Stem 2—4 ft. high, leaves all pinnate, leaflets lanceolate, flowers flesh-coloured. *Moist woods.*

VALERIA'NA DIOI'CA (69). Small Marsh Valerian. 5—6. Dicœ-
(710) cious, stem leaves pinnatifid, radical leaves ovate, flowers rose-coloured. *Wet meadows and bogs.*

III.—*VALERIANELLA.*

Corolla regular 5-lobed, stamens 3, fruit membranous 2—3-celled 1-seeded.

VALERIANEL'LA OLITO'RIA (95). Lamb's Lettuce. 4—6. Cymes
(715) dense capitate, flowers blue, calyx-limb obsolete. *Cornfields and hedge-banks.*

VALERIANEL'LA DENTA'TA (79). 6—8. Cymes lax, flowers
(719) flesh-coloured, calyx-limb oblique. *Cornfields.*

ORDER 39.—Dipsaceæ.

Calyx gamosepalous superior pappus-like surrounded by a scarious involucel. Corolla gamopetalous epigynous tubular, limb oblique 4 or 5-lobed. Stamens 4 epipetalous, filaments distinct, anthers versatile. Ovary 1-celled. Style filiform. Stigma simple, flowers in a dense head surrounded by a many-leaved involucre.

Calyx-limb entire, ... Dipsacus I.
Calyx-limb of separate bristles, 329
329 Receptacle scaly, ... Scabiosa II.
329 Receptacle hairy, ... Knautia III.

I.—*DIPSACUS.*

Involucral bracts many rigid spreading, floral bracts exserted spinescent, calyx-limb cup-shaped 4-lobed, receptacle with spinous scales.

DIP'SACUS SYLVES'TRIS (72). Wild Teasel. 8—9. Stem erect
(720) stout, 4—5 ft., prickly, leaves sessile entire obovate-lanceolate, flowers purple, in ovoid or cylindrical heads 2—3 in. diameter, bracts 8—12 linear rigid longer than the head. *Waste places.*

Dip'sacus pilo'sus (51). Small Teasel. 7—9. Stem 2—4 ft. slender
(721) scarcely prickly, leaves oblong usually with a pair of leaflets on the base, flowers white on globular heads ¾—1 in. diameter, bracts many shorter than the head deflexed. [T. Tb.

II.—*SCABIOSA.*

Receptacle scaly, calyx-limb of 4—5 bristles, stamens 4 exserted.

SCABIO'SA SUCCI'SA (112). Devil's-bit Scabious. 7—10. Corolla
(722) 4-cleft purplish blue, radical leaves ovate, cauline leaves oblong, root abruptly cut off. *Pastures.*

SCABIO'SA COLUMBA'RIA (71). Small Scabious. 7—8. Corolla
(723) 5-lobed lilac, leaves variable, radical leaves usually pinnate, cauline leaves pinnatifid. *Dry pastures and banks.*

III.—*KNAUTIA.*

KNAU'TIA ARVEN'SIS (95). Field Scabious. 6—8. Receptacle hairy
(724) without scales, calyx-limb cup-shaped with 8—16 radiating teeth, radical leaves lanceolate slightly serrate hairy, cauline leaves toothed lobed or pinnatifid, corollas 4-lobed lilac, outer ones much larger two-lipped. *River-banks and fields.*

ORDER 40.—Compositæ.

Calyx gamosepalous superior united with the ovary, its limb wanting or consisting of bristles or hairs (pappus). Corolla gamopetalous epigynous with 5 teeth, either ligulate or tubular. Stamens 5 epipetalous. Anthers united (syngenesious). Ovary 1-celled with a single erect ovule. Style 1. Stigmas 2. Fruit an achene tapering to a beak or without one. Flowers collected in heads (forming compound flowers) upon a common receptacle surrounded by an involucre.

Florets all ligulate, 330
Florets some tubular, 331

330 Pappus absent, ... Lapsana X.
330 Pappus present. 332

331 Florets all tubular, style swollen below its branches, 333
331 Style not swollen below its branches, 334

332 Pappus of scales, ... Cichorium XI.
332 Pappus of hairs, 335

333 Leaves spiny or prickly, 336
333 Leaves not spiny, 337

334 Pappus none, 338
334 Pappus present, 340

335 Pappus of central florets plumose, 341
335 Pappus pilose, 342

336 All the involucral bracts spinous, 343
336 Outer bracts only spinous, inner ones coloured spreading, ... Carlina XVI.

337 Scales of involucre hooked at the point, . . . Arctium XII.
337 Scales of involucre straight at the point, 344

338 Receptacle with scales, 339
338 Receptacle without scales, 345

339 Receptacle convex, ... Anthemis XXVIII.
339 Receptacle flat, ... Achillea XXXIII.

340 Pappus of 2—5 bristles, ... Bidens XVIII.
340 Pappus of numerous hairs, 346

341 Receptacle with chaffy scales, ... Hypochæris III.
341 Receptacle without scales, 347

342 Achenes much compressed, 348
342 Achenes nearly terete, 351

343 Achenes compressed, ... Carduus XIV.
343 Achenes 4-ribbed, ... Onopordium XV.
344 Pappus much longer than the achene, . . Serratula XIII.
344 Pappus not longer than the achene, . Centaurea XVII.
345 Heads with a conspicuous ray, usually differently coloured to the disk, 352
345 Heads all of one colour, ray not conspicuous, 353
346 Leaves all radical, appearing after the flowers, 354
346 Stems leafy, 355
347 Involucre imbricated, 349
347 Involucre simple, ... Tragopogon I.
348 Achenes with a beak, ... Lactuca V.
348 Achenes without a beak, ... Sonchus VI.
349 Stem leafy, 350
349 Scape leafless, ... Leontodon II.
350 Outer bracts broadly cordate, . . Helminthia XXXVI.
350 Bracts equal, ... Picris XXXVII.
351 Beak short or none, 356
351 Beak long, ... Taraxacum IX.
352 Leaves all radical, scape 1-flowered, . . Bellis XXX.
352 Leaves not all radical, 357
353 Achenes angled crowned by a large epigynous disk, leaves not downy beneath, . . . Tanacetum XX.
353 Achenes obovate with a small disk, leaves downy beneath, ... Artemisia XXI.
354 Heads in racemes, ... Petasites XXIV.
354 Heads solitary, ... Tussilago XXVI.
355 Heads discoid, 358
355 Heads with a conspicuous ray, 360
356 Pappus white soft deciduous, . . . Crepis VII.
356 Pappus brown brittle, ... Hieracium VIII.
357 Bracts of the involucre with scarious margins, Chrysanthemum XXXI.
357 Bracts without margins, ... Matricaria XXXII.
358 Bracts of the involucre leafy, 359
358 Bracts of the involucre dry scarious, 362
359 Leaves entire, 361
359 Leaves pinnatifid, ... Senecio XXVII.
360 Bracts of the involucre imbricated, 363
360. Bracts of the involucre in one row, with scales at the base, ... Senecio XXVII.

361 Flowers in corymbs, ... Eupatorium XIX.
361 Flowers in panicles, ... Erigeron IV.
362 Heads dicœcious, ... Antennaria XXII.
362 Heads all similar, 364
363 Anthers with 2 bristles at the base, ... Inula XXIX.
363 Anthers simple, 365
364 Receptacle conical, ... Filago XXXV.
364 Receptacle flat, ... Gnaphalium XXIII.
365 Ray yellow, 365*
365 Ray purple, 366
366 Florets of ray many, ... Erigeron IV.
366 Ray-florets few, ... Aster XXXIV.
365*Radical leaves cordate, ... Doronicum XXXVIII.
365*Radical leaves obovate, ... Solidago XXV.

I.—*TRAGOPOGON.*

TRAGOPO'GON PRATEN'SIS (83). Goat's-beard. 6—7. Florets (893) all ligulate and perfect, pappus feathery, achenes longitudinally striate with a long beak, receptacle naked, involucral bracts 8—10 lanceolate 1—1½ in., leaves alternate entire long and slender amplexicaul, sheath dilated, flower-heads ½—2 inch diameter yellow. *Meadows and waste places.*

II.—*LEONTODON.*

Leaves all radical obovate sinuous toothed or pinnatifid, scapes simple or branched, bracts of the involucre many in several series, outer bracts smaller, achenes grooved with a short beak, pappus-hairs rigid—outer simple, inner of one series of feathery hairs.

Scapes branched, ... Leontodon autumnalis.
Scapes simple, 367
367 Involucre glabrous, ... Leontodon hirtus.
367 Involucre hairy, ... Leontodon hispidus.

LEON'TODON AUTUMNA'LIS (110). Autumnal Hawk-bit. 8—9.
(881) Leaves lanceolate toothed or pinnatifid nearly glabrous, peduncles swollen below the involucre, scapes branched. *Pastures and waste places.*

LEON'TODON HIR'TUS (65). Hairy Hawk-bit. 7—8. Leaves
(879) oblong or lanceolate toothed hispid with forked hairs, scapes single-flowered, pappus of the outer flowers with a scaly cup, of the inner flowers long and feathery. *Gravelly pastures and moors.*

LEON'TODON HIS'PIDUS (87). Rough Hawk-bit. 7—8. Leaves
(880) runcinate hispid, scapes single-flowered, peduncles swollen above, pappus with an outer row of bristles. *Pastures.*

III.—*HYPOCHÆRIS.*

HYPOCHÆ'RIS RADICA'TA (239). Cat's-ear. 7. Pappus feathery,
(877) receptacle with scales, involucre oblong imbricated with acuminate scales, achenes of all the florets beaked, stem branched glabrous, leaves all radical runcinate obtuse rough. *Waysides.*

IV.—*ERIGERON.*

Bracts imbricated many narrow, ray florets very numerous in several rows short, disk florets few.

ERIG'ERON CANADEN'SIS. 8—9. Leaves linear or lanceolate slightly
(732) toothed, ray florets minute reddish filiform scarcely longer than the white pappus, disk florets yellowish white. *Waste places.*

ERIG'ERON A'CRIS (65). Flea-bane. 7—8. Leaves linear oblong
(733) entire, ray florets pale purple scarcely longer than the reddish pappus, disk florets very few pale yellow. *Dry banks.*

V.—*LACTUCA.*

LACTU'CA MURA'LIS (67). Ivy-leaved Lettuce. 7. Achenes black
(886) much compressed with a beak shorter than the achene, pappus pilose, involucre cylindrical imbricated, scales membranous at the margin, receptacle naked, flowers panicled small yellow with 5 florets, leaves lyrate toothed with the terminal lobe angled. *Old walls and rocky copses.*

Lactuca sativa is the cultivated Lettuce.

VI.—*SONCHUS.*

Involucre oblong imbricated ovate at the base, receptacle naked, pappus pilose short sessile, achenes much compressed without a beak.

Flower-heads large, ... S. arvensis.

Flower-heads small, ... S. oleraceus.

SON'CHUS OLERA'CEUS (109). Sow-thistle. 6—8. Leaves entire
(889) or pinnatifid sharply toothed, lower ones petiolate, upper ones lanceolate amplexicaul, flowers small yellow. *Waste places.*

SON'CHUS ARVEN'SIS (107). Corn Sow-thistle. 6—9. Lower leaves runcinate, upper ones oblong lanceolate, flowers yellow 1—2 in. in diameter. *Cultivated fields.*

VII.—*CREPIS.*

Bracts of the involucre many linear equal, receptacle flat naked pitted, achenes nearly terete striate, beak short or none, pappus white and silky.

Achenes with a distinct beak, ... C. fœtida.

Achenes without a beak, 367*

367*Pappus shorter than the achene, ... C. virens.

367*Pappus as long as the achene, ... C. paludosa.

367*Pappus longer than the achene, ... C. succisæfolia.

CRE'PIS VI'RENS (106). Smooth Hawk's-beard. 7—8. Radical leaves
(836) lyrate, cauline leaves linear sagittate, inner bracts of the involucre glabrous within, flowers small yellow, stem furrowed much-branched. *Waste ground.*

CRE'PIS PALUDO'SA (60). Marsh Hawk's-beard. 7—9. Radical
(835) leaves obovate-lanceolate, cauline leaves sessile lanceolate acuminate amplexicaul, involucre with black glandular hairs, stem slender furrowed branched, flowers yellow —1 in. in diameter in corymbs. *Moist mountain-meadows.*

Cre'pis succisæfo'lia (15). Succory-leaved Hawk's-beard. 7—8. Radical
(834) leaves spathulate nearly glabrous, cauline leaves sessile linear-oblong somewhat amplexicaul, flowers yellow ¾—1 in. in diameter few, stem tall slender branched. [G. (*Stainforth Wood*, *Borrins Wood*.)

Cre'pis fœtida (15). Fœtid Hawk's-beard. 6—7. Stem slightly hairy 1 ft.
(828) high, radical leaves irregularly pinnatifid, flower-heads few ¾ in. diameter, bright yellow on long peduncles, involucres hairy, beak of inner achenes long and slender, of outer achenes very short. [L.

VIII.—*HIERACIUM.*

Leaves chiefly radical, cauline leaves alternate sessile, receptacle flat naked pitted, achenes angular furrowed not beaked, pappus pilose in one row brownish brittle, involucre imbricated, bracts many.

Plant producing runners, 368

Plant without runners, 369

368 Flowers orange, ... H. aurantiacum.

368 Flowers yellow, ... H. Pilosella.

369 Leaves mostly radical forming a rosette, 370

369 Radical leaves none, stem leafy, 371

370 Flower-heads more than 1 inch in diameter, . . H. Lawsoni.

370 Flower-heads ¾—1 inch in diameter, 372

371 Stem under 2 ft. leaves narrow, . . . H. umbellatum.

371 Stem 2 ft. or more, 373

372 Radical leaves ovate cordate or rounded at the base, cauline leaves few or none, ... H. murorum.

372 Radical leaves petiolate alternate lanceolate sharply toothed, stem leafy, ... H. sylvaticum.

373 Leaves all amplexicaul, . . . H. prenanthoides.

373 Leaves scarcely amplexicaul, 374

374 Stem nearly glabrous, leaves linear-lanceolate, . . H. crocatum.

374 Stem very hairy below, leaves ovate, ... H. boreale.

HIERA'CIUM AURANTI'ACUM. 6—7. Leaves obovate not downy
(837) beneath, flowers orange corymbose, bracts obtuse, root stock creeping. *Copses.*

HIERA'CIUM PILOSEL'LA (110). Mouse-ear Hawkweed. 5—8.
(836) Leaves entire elliptical or obovate downy beneath, scapes usually leafless, flowers yellow solitary, runners creeping. *Woods and banks.*

Hiera'cium Lawso'ni (18). 7—8. Stem 1—2 ft. high, radical leaves
(857) ovato-lanceolate, petioles long shaggy winged, cauline leaves 1—2 ovate, flowers 2—5 large. [G. (*Attermire Cave, Stockdale, Gordale.*)

HIERA'CIUM UMBELLA'TUM (71). 7—9. Stem short wiry, leaves
(872) many narrow oblong-lanceolate or linear toothed or entire nearly smooth, flowers in somewhat umbellate corymbs, peduncles slender rigid. *Thickets.*

Hiera'cium Muro'rum (24). Wall Hawkweed. 6—8. Stem 1—2 ft. high
(859, 853, 854, 860) nearly glabrous, radical leaves in a distinct rosette ovate cordate or rounded at the base, cauline leaves few or none, heads 2—6, peduncles flocculent. [G.

HIERA'CIUM SYLVAT'ICUM (55). Wood Hawkweed. 6—8.
(863, 866) Leaves lanceolate sharply toothed, radical leaves distinctly alternate not so crowded in a rosette as in H. murorum, stem more leafy. *Woods and banks.*

Hiera'cium prenanthoi'des (15). 8—9. Stem 2—3 ft. rigid leafy often
(869) much-branched, leaves oblong or linear oblong amplexicaul with remote teeth, upper leaves cordate and auricled, peduncles short flocculent. [G. (*Stainforth Force.*)

Hiera'cium croca'tum (27). 7—9. Stem 2—4 ft. branched, leaves lance-
(873, 874) olate or oblong sessile rounded at the base toothed or entire. [G. (*Attermire Cave, Gordale.*)

HIERA'CIUM BOREA'LE (87). 7—9. Stem 2—4 ft. long very hairy
(875) below downy above, leaves broad at the base ovate or lanceolate toothed, lower leaves petiolate, upper leaves sessile, involucres glabrous dark-coloured, peduncles flocculent white. *Woods and banks.*

IX.—*TARAXACUM.*

TARAX'ACUM OFFICINA'LE (110). Dandelion. 3—10. Leaves all
(882) radical sinuate toothed or runcinate, flowers solitary, corollas bright yellow, outer ones often brown at the back, involucre imbricated, outer bracts smaller often recurved, receptacle flat naked pitted, pappus pilose, achenes terete slightly angled at the base with a long slender beak. *Waste places everywhere.*

X.—*LAPSANA.*

LAPSA'NA COMMU'NIS (110). Nipplewort. 7—9. Achenes com-
(825) pressed, pappus none, involucre of one row of bracts with smaller ones at the base, flowers panicled small yellow, peduncles slender, radical leaves somewhat lyrate, cauline leaves ovate dentate. *Waste places.*

XI.—*CICHORIUM.*

CICHOR'IUM IN'TYBUS (63). Chicory. 7—10. Pappus shorter than
(823) the achene sessile of scales, involucre of 8 scales united at the base with 5 outer smaller scales, stem 1—3 ft. high branched, flowers large blue, lower leaves runcinate, upper leaves amplexicaul oblong or lanceolate. *Fields and waste places.*

The *C. Endivia* of gardens is the common Endive used as a salad.

XII.—*ARCTIUM.*

ARC'TIUM LAP'PA. Burdock. 2—8. Achenes 4-sided, pappus hairy,
(794 -797) receptacle chaffy, involucre globose—the scales provided with hooks, leaves large petiolate cordate, flowers small purple. *Waste places.*

XIII.—*SERRATULA.*

SERRAT'ULA TINCTO'RIA (64). Saw-wort, 8—9. Achenes obo-
(814) vate compressed glabrous, pappus pilose in several rows shortest on the outside, receptacle chaffy, bracts of the involucre straight imbricated, leaves pinnatifid finely serrate, flowers small purple. *Copses, etc.*

XIV.—*CARDUUS.*

Leaves with prickly teeth, involucre of many imbricated narrow rigid acuminate or spiny bracts, achenes glabrous, pappus-hairs simple united into a ring at the base deciduous.

Pappus-hairs rough, 375
Pappus-hairs feathery, 377

375 Heads large solitary, 378
375 Heads small clustered, 376

376 Bracts broad, ... C. tenuiflorus.
376 Bracts slender, ... C. crispus.

377 Stem grooved more or less cottony, 379
377 Stem winged, 380

378 Bracts lanceolate, ... C. nutans.
378 Bracts leafy recurved, ... C. Marianus.

379 Heads many ½—1 in. diameter, . . . C. arvensis.
379 Heads few 1½—1 in. diameter, 381

380 Bracts lanceolate spreading, ... C. lanceolatus.
380 Bracts adpressed, ... C. palustris.
381 Leaves not prickly, ... C. heterophyllus.
381 Leaves prickly, 382
382 Heads sessile, stem very short, ... C. acaulis.
382 Heads peduncled, 383
383 Peduncles long, ... C. pratensis.
383 Peduncles short, ... C. eriophorus.

Car'duus erioph'orus (46). 7—9. Stem stout 3—5 ft. not winged, leaves (802) 1—2 ft. pinnate cottony beneath, heads 2—3 in. diameter, involucre globose woolly, bracts very many ciliated ending in a slender prickly point. [*Rg.*

CAR'DUUS TENUIFLO'RUS (70). 5—9. Stem 1—4 ft. cottony (798) winged, wings wavy prickly, leaves pinnatifid prickly, flower-heads numerous sessile fascicled small oblong, bracts subulate with recurved spines. *Sandy waste places, especially near the sea.*

CAR'DUUS NU'TANS (73). Musk Thistle. 5—9. Bracts of the in- (799) volucre lanceolate with the outer ones spreading, stem 1—3 ft. high grooved interruptedly winged, heads crimson 1—2 in. diameter. *Waste places.*

CAR'DUUS CRIS'PUS (87). Welted Thistle. 6—8. Stem 1—3 ft. with continuous wings, heads purple or white ½—¾ in. diameter in clusters, bracts very slender erect. *Waste places.*

CAR'DUUS MARIA'NUS. Milk Thistle. 7—8. Leaves large sessile am- (812) plexicaul waved with strong stout spines, spines of the involucre strong and recurved, heads purple 1—2 in. diameter. *Waste places.*

CAR'DUUS LANCEOLA'TUS (112). Spear Thistle. 7—10. Bracts (801) numerous lanceolate spreading spiny, leaves ½—1 ft. long obovate lanceolate pinnatifid with few bifid lobes armed with long stout spines, heads few purple ¾—1½ in. diameter. *Waste places.*

CAR'DUUS PALUS'TRIS (112). Marsh Thistle. 7—8. Stem 2—4 (863) ft. high branched winged very spiny, heads dark purple ¾ in. diameter in leafy clusters, bracts purplish green adpressed. *Wet meadows, etc.*

CAR'DUUS ARVEN'SIS (112). Creeping Thistle. 7—8. Dicœcious (809) staminate and pistillate plants in separate patches, stem angled and grooved but not winged, involucre ovoid with adpressed ovate bracts, leaves pinnatifid wavy, flowers purple. *Waste places everywhere.*

Car'duus heterophyl'lus (51). Melancholy Thistle. 7—9. Stem 2—3 ft. (807) high furrowed not winged, leaves soft, upper ones sessile ovate cordate at the base, heads purplish-red 1½—2 in. diameter, bracts adpressed. [G. (*Stackhouse, Feizor.*)

Car'duus praten'sis (47). 6—8. Stem 10-18 in. cottony not winged, leaves
(805) few soft lanceolate toothed, flower-heads 1—1½ in. diameter usually solitary, involucre cottony, bracts adpressed mucronate or acuminate.
[M. Wl.

Car'duus acau'lis (42). 7—9. Usually stemless with one ovoid glabrous
(808) flower-head, leaves radical lanceolate rigid spinous.
[M. Rg. T. Tb. L. Wl.

XV.—*ONOPORDIUM.*

ONOPOR'DIUM ACAN'THIUM (60). Cotton Thistle. 7—9. Stem
(811) 2—5 ft. high broadly winged, involucre swollen with many imbricated spreading spinous bracts, heads purple 1½—2 in. diameter, achenes obovate compressed 4-ribbed. *Dry waste places.*

XVI.—*CARLINA.*

CARLI'NA VULGA'RIS (77). Carline Thistle. 6—10. Stem 6—18
(793) in. without wings many-flowered, outer bracts leafy prickly toothed spreading, inner long narrow yellowish shining forming a sort of ray, leaves pinnatifid waved spinous-toothed downy beneath, heads purple ¾—1½ in. diameter. *Dry fields.*

XVII.—*CENTAUREA.*

Corollas all tubular 2-lipped or oblique, outer usually larger without stamens or pistil and forming a sort of ray, involucre ovoid or globose, bracts adpressed imbricated often fringed, pappus pilose of short hairs or scaly.

Leaves entire, 384
Leaves pinnatifid, 385

384 Outer florets purple, ... C. nigra.
384 Outer florets blue, ... C. Cyanus.
385 Involucral bracts ending in long stout prickles, . . C. Calcitrapa.
385 Involucres not prickly, ... C. Scabiosa.

CENTAU'REA NI'GRA (110). Black Knapweed. 6—9. Bracts of
(816) the involucre with a broad brown or black fringe, heads purple 1—1½ in. diameter, upper leaves lanceolate, lower leaves lyrate rough *Meadows.*

CENTAU'REA CYA'NUS (90). Corn Blue-bottle. 6—8. Leaves
(818) linear lanceolate, lower leaves toothed, margins of bracts pectinate, florets of disk small purple, floret of ray large bright blue spreading. *Cornfields.*

CENTAU'REA SCABIO'SA (81). Great Knapweed. 7—9. Bracts
(817) with ciliate margins, stem 2—3 ft. high grooved branched, heads bright purple 1½—2 in. diameter, florets of ray large scattered spreading. *Fields.*

Centau'rea calci'trapa (16). Stem 1—2 ft., leaves pinnatifid, involucral
(821) bracts ending in stiff spines ¾ in. long, florets rose-purple.

[W. L.

XVIII.—*BIDENS.*

Bracts of the involucre in two series—outer leafy spreading, heads discoid yellowish, fruit compressed ribbed, pappus of 2—5 barbed bristles.

BI'DENS TRIPARTI'TA (80). Bur-Marigold. 7—9. Leaves petio-
(756) late tri-cleft, heads only slightly drooping. *Watery places.*

BI'DENS CER'NUA (81). 7—10. Leaves sessile oblong lanceolate
(755) serrate, heads drooping. *Watery places.*

XIX.—*EUPATORIUM.*

EUPATOR'IUM CANNABI'NUM (97). Hemp Agrimony. 7—9.
(726) Heads discoid pale purple in dense terminal corymbs, florets 5—6, bracts about 10 shorter than the flowers, pappus pilose rough, style-arms long pubescent, leaves opposite downy 3—5 cleft, leaflets lanceolate deeply serrate. *River banks and damp woods.*

XX.—*TANACETUM.*

TANACE'TUM VULGA'RE (102). Tansy. 8—9. Heads many in
(770) corymbs dull yellow ½ in. diameter, involucre hemispherical, outer florets only longer than the bracts, leaves bi-pinnatifid, segments deeply serrate. *Waste places.*

XXI.—*ARTEMISIA.*

Heads small discoid yellowish in racemes or panicles, florets few all tubular, leaves alternate often much cut.

ARTEMIS'IA VULGA'RIS (110). Mugwort. 7—9. Leaves pinna-
(772) tifid broad woolly beneath, heads erect. *Waste places.*

ARTEMIS'IA ABSIN'THIUM (71). Wormwood. 7—9. Leaves
(771) silky, heads drooping. Aromatic. *Waste places and in gardens.*

XXII.—*ANTENNARIA.*

ANTENNA'RIA DIOI'CA (84). Everlasting. 6—7. Heads small in
(741) corymbs dicecious, involucre imbricated inner bracts coloured white or pink, radical leaves spathulate woolly beneath, cauline leaves linear-lanceolate adpressed. *Mountain pastures.*

XXIII.—*GNAPHALIUM.*

Heads small racemed, bracts of involucre adpressed as long as the flowers, nearly transparent.

GNAPHA'LIUM SYLVAT'ICUM (97). Highland Cudweed. 7—9.
(744) Stem simple woolly, heads cylindrical ¼ inch long axillary and terminal forming a leafy raceme, leaves linear or lanceolate obovate. *Woods and pastures.*

GNAPHA'LIUM ULIGINO'SUM (107). Marsh Cudweed. 7—9.
(742) Stem branched, heads ⅛ in. long, in crowded terminal tufts, leaves linear lanceolate downy. *Damp places.*

XXIV.—*PETASITES.*

PETASI'TES VULGA'RIS (102). Butter-bur. 3—5. Leaves pro-
(777) duced after the flowers very large reaching 3 ft. in diameter orbicular, flowers pink in a dense spike. *Wet meadows and roadsides.*

XXV.—*SOLIDAGO.*

SOLIDA'GO VIRGAU'REA (108). Golden-rod. 7—9. Stem erect
(727) 6—24 in. high, heads golden-yellow in crowded panicles or racemes, florets of the disk tubular, florets of the ray few in one row ligulate, leaves lanceolate oblong. *Woods and thickets.*

XXVI.—*TUSSILAGO.*

TUSSILA'GO FAR'FARA (112). Colt's-foot. 3—5. Leaves large
(775) cordate angled toothed downy beneath produced after the flowers, heads solitary bright yellow 1—1½ in. diameter, florets of the disk tubular few, of the ray ligulate in many rows, scape imbricated with scales. *Moist and clay soils.*

XXVII.—*SENECIO.*

Involucre cylindrical, bracts linear, pappus pilose hairs soft in many rows, flowers yellow with or without a ray.

Florets of the ray revolute or wanting, . 386
Florets of the ray spreading, 387

386 Ray florets revolute 388
386 Ray florets wanting, ... S. vulgaris.

387 Leaves entire, ... S. Saracenicus.

387 Leaves pinnatifid, 389

388 Outer bracts very short, ... S. sylvaticus.
388 Outer bracts half as long as the inner leaves with viscid hairs, ... S. viscosus.

389 Heads over 1 in. diameter, corymbs lax, . . . S. aquaticus.
389 Heads under 1 in. diameter, corymbs dense, 390
390 Stem and leaves glabrous, 391
390 Stem cottony, leaves downy beneath, . . S. erucæfolius.
391 Stem 8—12 in. high, ... S. squalidus.
391 Stem 1—4 ft. high, ... S. Jacobæa.

SENE'CIO VULGA'RIS (112). Common Groundsel. 1—12. Heads
(781) few drooping ½ in. long, leaves pinnatifid irregularly toothed. *Waste places.*

SENE'CIO SYLVAT'ICUS (104). Mountain Groundsel. 7—9.
(782) Slightly viscid, heads many spreading, leaves like those of S. vulgaris but more deeply cut. *Dry banks and pastures.*

Sene'cio visco'sus (28). Stinking Groundsel. 7—9. Heads few erect,
(783) leaves broad pinnatifid with viscid hairs, plant with a disagreeable smell more powerful than that of S. sylvaticus. [G. (*Settle.*)

SENE'CIO ERUCÆFO'LIUS (67). Hoary Ragwort. 7—8. Stem
(785) 1—4 ft. high stout downy, heads large in a dense corymb, leaves broad pinnatifid—downy beneath. *Roadsides and banks.*

SENE'CIO JACOBÆ'A (112). Ragwort. 7—8. Stem 1—4 ft. high
(786) stout glabrous, heads ¾—1 in. diameter in a dense corymb, leaves pinnatifid glabrous. *Waysides.*

SENE'CIO AQUAT'ICUS (110). Marsh Ragwort. 7—8. Resem-
(787) bling S. Jacobæa but with larger heads of flowers in a very lax corymb and leaves with longer petioles, radical leaves often entire. *Wet places.*

SENE'CIO SARACEN'ICUS. Broad-leaved Ragwort. 6—7. Stem 3—5
(788) ft. high erect stout leafy, leaves 5—8 in. long lanceolate glabrous irregularly serrate. [G. (*Ingleton.*)

XXVIII.—*ANTHEMIS.*

Leaves alternate bi-pinnatifid, flower-heads solitary, florets of ray yellow or white ligulate, those of disk tubular yellow, pappus 0 or a minute border only.

Plant glabrous, ... A. Cotula.
Plant downy, 392
392 Procumbent or creeping, ... A. nobilis.
392 Erect or branching, ... A. arvensis.

ANTHE'MIS COT'ULA (72). Stinking May-weed. 6—9. Stem
(762) 8—18 in. erect branched, ray florets white with no style, receptacle convex, scales acute. *Fields and waste places.*

Anthe'mis nob'ilis (46). Chamomile. 7—9. Stem branched procumbent
(764) or creeping, ray florets white pistillate, scales of receptacle obtuse. [Wl.

ANTHE'MIS ARVEN'SIS (69). Corn Chamomile. 6—8. Stem 1—2
(763) ft. erect branched, ray florets white pistillate, scales of receptacle mucronate. *Fields and waste places.*

XXIX.—*INULA.*

Erect rigid herbs with alternate leaves entire or toothed, flower-heads in terminal corymbs or panicles, involucre campanulate with several rows of bracts, ray florets ligulate usually forming a conspicuous ray, disk florets tubular, receptacle flat without scales, pappus of 1 row of hairs or with an outer series of very short scales, anthers with two minute hair-like points on the base.

Ray apparently absent, 393
Ray conspicuous, 394
393 Stem 2—5 ft. high, ... I. Conyza.
393 Stem 6—18 in. high, ... I. Pulicaria.
394 Heads 1 in. diameter, ... I. dysenterica.
394 Heads 3 in. diameter, ... I. Helenium.

IN'ULA DYSENTER'ICA (76). Flea-bane. 7—9. Stem 6—12 in.
(751) high woolly branched very leafy, heads 1 in. diameter few terminal yellow with a conspicuous ray in diameter double the disk, pappus with an outer row of very small connate scales, leaves oblong cordate or sagittate wrinkled downy. *Moist places.*

In'ula Pulica'ria (25). Flea-bane. 8—9. Stem 6—18 in. much-branched
(752) leafy, leaves oblong lanceolate sessile pubescent, pappus with an outer series of very small free scales, flower-heads $\frac{1}{3}$—$\frac{1}{2}$ in. diameter numerous in a panicle. [Rg. Wl.

In'ula Hele'nium. Elecampane. 7—8. Stem stout 2—5 ft. not much
(747) branched, leaves oblong large toothed, flower-heads very large with a broad ray and broad ovate leafy bracts, pappus reddish of one row of hairs. *Much cultivated formerly.* [M.

IN'ULA CONY'ZA (58). Ploughman's Spikenard. 7—9. Stem 2—5
(748) ft. pubescent, leaves ovate lanceolate downy beneath, flower-heads small numerous in terminal corymbs, outer florets numerous small, styles purple, pappus reddish of one row of hairs. *Copses and dry banks.*

XXX.—*BELLIS.*

BEL'LIS PEREN'NIS (112). Daisy. 1—12. Pappus none, involucre
(728) hemispherical, bracts in a single row, florets of the disk tubular yellow, those of the ray ligulate white, leaves all radical obovate crenate, scapes 1-flowered naked. *Meadows.*

XXXI.—*CHRYSANTHEMUM.*

Pappus none, involucre hemispherical or flat, bracts imbricated with scarious margins, disk-florets tubular yellow, ray-florets ligulate yellow or white, ray large.

CHRYSAN'THEMUM LEUCAN'THEMUM (108). Ox-eye. 6—8.
(766) Ray white, bracts with narrow margins. *Pastures.*

CHRYSAN'THEMUM SEG'ETUM (109). Corn Marigold. 6—9.
(765) Ray yellow, bracts with broad margins. *Cultivated fields.*

XXXII.—*MATRICARIA.*

Pappus none or a mere border, bracts of the involucre scarcely membraneous at the margin, disk-florets yellow, ray-florets white, leaves alternate much-divided, achenes angular with a large epigynous disk.

Disk very conical, ... M. Chamomilla
Disk flat or slightly convex, 395
395 Ray very short, ... M. Parthenium.
395 Ray large, ... M. inodora.

MATRICA'RIA PARTHE'NIUM. Feverfew. 7—9. Leaves pinnate,
(767) segments ovate cut, ray very short, heads many corymbose. *Hedge-banks, etc., and in gardens.*

MATRICA'RIA INODO'RA (111). Corn Feverfew. 6—10. Leaves
(768) bi-pinnatifid with very narrow segments, heads solitary 2 in diameter with a large ray. *Fields, etc.*

MATRICA'RIA CHAMOMIL'LA (62). Wild Chamomile. 6—8.
(769) Receptacle very conical, heads ½—¾ in. diameter, ray short truncate toothed, leaves bi-pinnatifid with very narrow segments. *Fields.*

XXXIII.—*ACHILLEA.*

Leaves alternate entire or divided, heads in corymbs yellow or with the ray white or purple, pappus none, receptacle flat covered with chaffy scales.

ACHILLE'A PTARMI'CA (108). Sneeze-wort. 7—8. Leaves linear-
(759) lanceolate serrate glabrous, flowers white. *Meadows.*

ACHILLE'A MILLEFO'LIUM (112). Yarrow. 6—9. Leaves bi-pin-
(758) natifid woolly, disk white or yellowish, ray pink white or purple. *Waysides.*

XXXIV.—*ASTER.*

AS'TER TRIPO'LIUM (65). 7—9. Stem 2—3 ft. erect, leaves lanceolate
(730) fleshy, flower-heads in a compact corymb, bracts few oblong, florets of ray purplish ligulate, disk-florets tubular yellow. *Salt marshes.*

XXXV.—*FILAGO.*

Flower-heads in terminal clusters, involucral bracts imbricate woolly, receptacle elongate slender, florets all tubular, outer ones pistillate, central florets perfect or staminate.

FILA'GO GERMAN'ICA (93). 7—8. Stem 6—18 in. erect cottony, (735, 736, 737) leaves linear oblong ½—1 in., heads 20 or more in terminal spherical clusters. *Dry pastures and banks.*

FILA'GO MIN'IMA (88). 6—9. Stem slender erect, 6—12 in., leaves (738) ¼ in. lanceolate, flower-heads small woolly 3—6 in a cluster. *Dry fields and waste places.*

XXXVI.—*HELMINTHIA.*

HELMIN'THIA ECHIOI'DES (65). Ox-tongue. 6—10. Stem stout (827) erect, 2—3 ft., leaves oblong lanceolate very rough, upper leaves amplexicaul, flower-heads 1 in. diameter yellow in a few-flowered irregular corymb, florets all ligulate, achenes ending in a slender beak, pappus dense plumose. *Fields and waste places.*

XXXVII.—*PICRIS.*

PIC'RIS HIERACIOI'DES (60). 7—9. Stem 2—3 ft. erect, leaves (826) obovate-lanceolate hispid, upper leaves sessile, flower-heads 1 in. diameter yellow in an irregular terminal corymb, florets all ligulate, fruit curved grooved not beaked, pappus plumose. *Waste places.*

XXXVIII.—*DORONICUM.*

DORONICUM PARDALIANCHES. 5—7. Leopard's bane. Stem (779) 2 ft., leaves few cordate or ovate, flower-heads 3—5 on long peduncles 1½—2 in. in diameter, ray-florets ligulate numerous without pappus, disk-florets tubular with pappus of numerous hairs, bracts of involucres linear in few series. *An escape from gardens.* [S.

ORDER 41.—Campanulaceæ.

Calyx gamosepalous superior 5-lobed persistent. Corolla gamopetalous epigynous regular (irregular in *Lobelia*) 5-lobed. Stamens 5 epigynous alternate with the lobes of the corolla. Pistil syncarpous. Style simple hairy. Ovary 2 or more celled. Ovules numerous, placentation axile. Fruit a dry capsule crowned by the withered calyx and corolla, dehiscing by pores or valves.

Corolla campanulate, segments broad, . . . Campanula I.
Corolla rotate, segments linear, . 396
396 Anthers united, ... Jasione II.
396 Anthers free, ... Phyteuma III.

I.—*CAMPANULA.*

Radical leaves petiolate, cauline leaves alternate, flowers in spikes or racemes blue lilac or white, corolla campanulate 5-cleft, stamens 5 epigynous, filaments short broadest at the base, anthers linear, capsule 3 or 5-celled, opening by perforations at the base.

Stem creeping, ... C. hederacea.
Stem erect, 397
397 Cauline leaves linear, ... C. rotundifolia.
397 Cauline leaves oblong or ovate, serrate, 398
398 Stem 6—12 in. high, 399
398 Stem 1—4 ft. high, 400
399 Sepals shorter than the petals, . . . C. glomerata.
399 Sepals longer than the petals, . . . C. hybrida.
400 Plant pubescent, ... C. latifolia.
400 Plant hispid, ... C. Trachelium.

Campan'ula glomera'ta (49). Clustered Blue-bell. 9—10. Stem 6—18
(901) in. slender pubescent, leaves ovate serrate, radical leaves with long petioles, cauline leaves sessile, flowers bright blue erect, capsule short, opening by valves at the base. [M. R. F.

Campan'ula hyb'rida (47). Corn Blue-bell. 6—9. Stem nearly simple
(909) 6—10 in. erect angled, leaves entire oblong waved, radical ones with broad petioles, cauline leaves sessile, flowers sessile axillary, corolla rotate blue inside lilac outside, capsule 3-angled fusiform 1—1½ in. long opening by slits at the top, lobes of the calyx linear longer than those of the corolla. [M. R. Rg. W. Tb. L. Wl. F.

CAMPAN'ULA TRACHE'LIUM (58). Nettle-leaved Blue-bell. 9—10.
(902) Stem 1—3 ft. erect angled with reversed hairs, leaves ovate doubly serrate petiolate, flowers large bluish-purple solitary or two or three together in short leafy axillary racemes, calyx hispid, capsule short drooping opening by basal valves. *Woods and copses.*

CAMPAN'ULA ROTUNDIFO'LIA (110). Hare-bell. 7—9. Stem
(905) slender, radical leaves ovato-cordate, lower cauline leaves lanceolate, upper leaves linear, flowers blue drooping in racemes, corolla campanulate, lobes recurved. *Pastures and heaths.*

CAMPAN'ULA LATIFO'LIA (59). Giant Blue-bell. 7—8. Stem
(903) 3—5 ft. high furrowed leafy, leaves ovate serrate, flowers large blue or white in leafy racemes. *Moist woods.*

Campan'ula hedera'cea (45). Ivy-leaved Blue-bell. 7—8. Stem filiform
(898) creeping, leaves alternate petiolate cordate lobed glabrous, flowers pale blue ⅓ inch in diameter, peduncles 1-flowered.
[G. (*Gargrave*), R. T. Tb.

Campanula medium is the Canterbury-bell of Gardens.

II.—*JASIONE.*

JASI'ONE MONTA'NA (78). Sheep's-bit. 6—9. Stem 6—10 inches
(897) high branched, leaves alternate oblong hairy, flowers small lilac in terminal heads, corolla regular 5-cleft to the base, filaments free, anthers connate at the base. *Heathy pastures.*

III.—*PHYTEUMA.*

Phyteu'ma orbicula're (9). Rampion. 7—8. Stem erect or decumbent, (899) 6—18 in., radical leaves ovate long petiolate, flowers deep blue in globular heads, corolla 5-cleft up to the base, segments linear.
[M. W. Wl..

ORDER 42.—Ericaceæ.

Calyx inferior or superior 4-cleft. Corolla hypogynous or epigynous usually campanulate 4—5-lobed or toothed. Stamens equal in number to the lobes of the corolla or twice as many, hypogynous or epigynous. Ovary 4—5-celled many-seeded. Style 1. Stigma 1.

Herbs, 401
Shrubs, 402

401 Leaves green, ... Pyrola V.
401 Leaves reduced to scales, ... Monotropa VI.
402 Ovary inferior, stamens epigynous, . . Vaccinium IV.
402 Ovary superior, stamens hypogynous, 403
403 Corolla deciduous, ... Andromeda III.
403 Corolla persistent, 404
404 Calyx single 4-partite, capsule loculicidal, . . Erica I
404 Calyx double, 4 sepals and 4 bracts resembling an outer calyx, capsule septicidal, . . . Calluna II.

I.—*ERICA.*

Calyx 4-partite, corolla campanulate or ovate 5-toothed, stamens 8, inserted on a hypogynous disk, capsules 4-celled many-seeded, dehiscence loculicidal.

ERI'CA TET'RALIX (109). Cross-leaved Heath. 7—8. Leaves four (920) in a whorl lanceolate, flowers rose-coloured drooping 6 to 12 in an umbel. *Heaths.*

ERI'CA CINE'REA (108). Fine-leaved Heath. 7—9. Leaves three in (922) a whorl linear, flowers crimson in a dense whorled raceme. *Heaths.*

II.—*CALLUNA.*

CALLU'NA VULGA'RIS (110). Common Ling. 7—9. Calyx of 4 (918) coloured sepals with outer coloured bracts, corolla shorter than the calyx 4-partite, leaves very small closely imbricated in few rows, flowers rose-coloured or white small drooping in racemes. *Heaths.*

III.—*ANDROMEDA.*

Androm'eda polifo'lia (29). Marsh Andromeda. 6—8. Stem rigid
(917) shrubby much branched, leaves alternate lanceolate glabrous glaucous beneath margin revolute, flowers purplish drooping in short racemes. [G. (*between Helwith Bridge and Moughton.*)

IV.—*VACCINIUM.*

Calyx superior 4—5-toothed, stamens 8—10 inserted into an epigynsou disk.

VACCIN'IUM MYRTIL'LUS (100). Whortleberry, Bilberry. 4—6.
(913) A shrub, stems erect 6—18 in. high, leaves deciduous ovate serrate, corolla rose-coloured globose, flowers drooping in umbels, berries black. *Heaths.*

VACCIN'IUM VITIS-IDÆ'A (62). Cowberry. 6—8. Stem pro-
(911) cumbent, leaves evergreen obovate, corolla pale-pink campanulate, flowers in short terminal racemes, berries red. *Mountain heaths.*

VACCIN'IUM OXYCOC'CUS (66). Cranberry. 7—8. Stem filiform
(910) creeping, leaves small alternate ovate evergreen, corolla pale-pink rotate, segments reflexed. *Heaths.*

V.—*PYROLA.*

Herbs, flowers racemose, stamens 10 hypogynous.

Py'rola rotundifo'lia (21). Wintergreen. 7—9. Stamens erect, style de-
(928) curved bent at the end longer than the stamens, leaves orbicular obovate, flowers ½ in. in diameter pure white. [G. (*Kilnsey.*)

PY'ROLA MI'NOR (65). Lesser Wintergreen. 6—7. Stamens incurved,
(930) style decurved straight equal in length to the stamens, leaves orbicular ovate, flowers ¼ in. diameter drooping globose white tinged with pink. *Woods, heaths, and commons.*

VI.—*MONOTROPA.*

Monot'ropa Hypop'itys (44). Bird's-nest. 7—8. Parasitic on roots of
(933) fir and beech. Stem 6—12 in. stout fleshy pale-brown, scales oblong brown, flowers in a terminal raceme, corolla campanulate yellowish brown, sepals nearly as long as the petals. [W.

To this Order belong also the *Rhododendron*, *Azalea*, and *Arbutus* of our shrubberies and the *Epacris* of our greenhouses.

ORDER 43.—Aquifoliaceæ.

Calyx gamosepalous 4—6-cleft inferior imbricated in bud. Petals 4 slightly united at the base. Stamens 4 adhering to the base of the corolla alternate with its segments. Disk none. Pistil syncarpous of 4 carpels. Ovary 4—6-celled. Stigmas sessile. Fruit a fleshy drupe with 4—6 stones.

I.—*ILEX.*

I'LEX AQUIFO'LIUM (101). Common Holly. 5—8. A tree 10—30 (314) ft. high, leaves ovate spiny evergreen glabrous and shining.

ORDER 44.—Oleaceæ.

Calyx inferior 4-lobed or none. Corolla regular 4-partite sometimes absent. Stamens 2. Ovary 2-celled. Style simple or none. Fruit a samara or berry. Leaves opposite simple or pinnate. Flowers in terminal or axillary racemes or panicles.

Corolla 4-lobed, fruit a fleshy berry, ... Ligustrum I.

Corolla absent, fruit dry and winged, ... Fraxinus II.

I.—*LIGUSTRUM.*

LIGUS'TRUM VULGA'RE (81). Privet. 8—7. A shrub 4—10 ft. (962) high, calyx tubular 4-toothed deciduous, corolla funnel-shaped 4-lobed white, stamens 2 included in the corolla tube, leaves oblong lanceolate opposite. *Thickets.*

II.—*FRAXINUS.*

FRAX'INUS EXCEL'SIOR (109). Ash. 4—5. A tree 20—60 ft. (961) high, calyx 4-cleft or absent, corolla none, flowers some staminate only some pistillate some perfect in dense axillary panicles, fruit winged, (a samara). *Woods.*

Jasminum officinale, the white Jessamine, and *Jasminum fruticans*, the yellow Jessamine, are closely allied to *Oleaceæ*, but have 5 petals.

ORDER 45—Apocynaceæ.

Calyx gamosepalous of 5 sepals inferior. Corolla gamopetalous 5-lobed hypogynous regular deciduous contorted in æstivation. Stamens 5 epipetalous. Pistil syncarpous, of two carpels. Usually poisonous.

I.—*VINCA.*

VIN'CA MI'NOR (71). Lesser Periwinkle. 4—5. Stem wiry and trail- (964) ing, leaves opposite shining elliptical-lanceolate stout with glabrous margins, flowers large blue solitary. *Woods and copses.*

VIN'CA MAJOR. Great Periwinkle. 4—5. Leaves ovato-cordate with (963) ciliate margins. *Thickets.*

The Oleander, *Allamanda*, *Dipladenia*, etc., grown under glass, belong to this Order.

ORDER 46—Gentianaceæ.

Calyx gamosepalous of 5 sepals inferior persistent. Corolla gamopetalous hypogynous regular of 5 petals persistent. Stamens epipetalous alternate with the segments of the corolla. Ovary 1-seeded, or 2-celled many-seeded. Style continuous with the ovary or none. Stigmas 1 or 2. Leaves ribbed without stipules.

Leaves opposite, 405
Leaves alternate, 406
405 Style persistent, 407
405 Style deciduous, flowers red, ... Erythræa III.
406 Leaves entire, ... Limnanthemum V.
406 Leaves ternate, ... Menyanthes I.
407 Flowers yellow, ... Chlora IV.
407 Flowers blue, ... Gentiana II.

I.—*MENYANTHES.*

MENYAN'THES TRIFOLIA'TA (106). Buckbean. 5—9. Calyx
(979) 5-partite, corolla pinkish-white funnel-shaped, limb 5-partite spreading densely bearded, stamens 5, style 1, stigma 2-lobed, root-stock creeping, leaves ternate, leaflets obovate, whole plant very bitter. *Bogs.*

II.—*GENTIANA.*

Leaves opposite, calyx 4- or 5-cleft, corolla funnel-shaped 4- or 5-lobed, stamens 5, ovary 1-celled, ovules many, style short or none, stigma 2-lobed.

Gentia'na Pneunoman'the (30). Marsh Gentian. 8—9. Throat of
(973) corolla naked, corolla large blue campanulate. [G. (*Clapham.*)

GENTIA'NA AMAREL'LA (81). Small-flowered Gentian. 8—9.
(976) Throat of corolla fringed, calyx 5-cleft segments equal, corolla pale purple. *Dry heaths.*

GENTIA'NA CAMPES'TRIS (85). Field Gentian. 8—9. Throat
(978) of corolla fringed, calyx 4-cleft two outer segments larger, corolla pale blue. *Chalk and Limestone Hills.*

III.—*ERYTHRÆA.*

ERYTHRÆ'A CENTAU'RIUM (98). Common Centaury. 6—9.
(967) Flowers bright pink small in cymes, calyx 5-cleft half as long as the corolla, corolla funnel-shaped, limb short, leaves ovate, stem erect angular. *Dry pastures.*

IV.—*CHLORA.*

CHLO'RA PERFOLIA'TA (60). Yellow Centaury. 6—9. Stem
(966) erect 6—12 in., leaves ovate connate at the base, flowers bright yellow in cymes, corolla rotate usually 8-cleft, stamens usually 8, ovary 1-celled many-seeded, style persistent, stigma trifid. *Chalky pastures.*

V.—*LIMNANTHEMUM.*

Limnan'themum nymphæoi'des (10). 7—8. Stems long, leaves alternate
(980) peltate or cordate floating, flowers bright yellow in sessile umbels, corolla rotate 1 in. diameter, usually 5-cleft, ovary 1-celled, style persistent, stigma lobed. [R.

ORDER 47.—Polemoniaceæ.

Calyx gamosepalous inferior. Corolla gamopetalous 5-cleft regular. Stamens 5 inserted on the corolla-tube. Ovary 3-celled. Stigma trifid.

I.—*POLEMONIUM.*

Polemo'nium cæru'leum (5). Jacob's ladder. 6—7. Leaves alternate
(981) pinnate, flowers blue or white corymbose, corolla ½—1 in. diameter campanulate, stem 1—2 ft. high. *Frequent in gardens.*
[G. (*Gordale*), M.

The *Phlox* of gardens and *Cobæa* of greenhouses belong to this Order.

ORDER 48.—Convolvulaceæ.

Calyx polysepalous inferior of 5 sepals imbricated. Corolla gamopetalous regular deciduous, limb 5-angled and plaited. Stamens 5 inserted at the base of the corolla-tube alternate with its segments. Pistil syncarpous of 2 carpels. Ovary 2-celled. Style 1. Stigma cleft. Slender often twining herbs with alternate exstipulate leaves.

Leafy plants, ...	Convolvulus I.
Leafless parasites, ...	Cuscuta II.

I.—*CONVOLVULUS.*

Slender twining herbs, leaves alternate cordate or sagittate, sepals 5 distinct, corolla campanulate 5-angled, stamens 5, ovary 2-celled, style filiform, stigmas 2.

Bracts small linear, placed low on peduncle, . .	C. arvensis.
Bracts large, enclosing the calyx, 408	
408 Leaves sagittate, ...	C. sepium.
408 Leaves reniform, ...	C. Soldanella.

CONVOL'VULUS ARVEN'SIS (92). Small Bindweed. 6—8. Bracts (1010) small low down on the peduncle, stem climbing ½ ft.—1 ft. high, leaves sagittate, lobes acute, flowers 1 in. diameter pink or white. *Fields.*

CONVOL'VULUS SE'PIUM (93). Great Bindweed. 6—8. Bracts (1008) 2 large enclosing the calyx, stem climbing 3—5 ft. high, leaves sagittate, lobes truncate, flowers 2 in. diameter pink or white. *Hedges.*

CONVOL'VULUS SOLDANEL'LA (44). Seaside Bindweed. 6—8. (1009) Bracts large enclosing the calyx, stem prostrate, leaves reniform fleshy. *Sandy sea-shores.*

II.—*CUSCUTA.*

Slender branched twining leafless parasites, calyx 4—5-cleft, corolla urceolate 4—5-cleft with a ring of scales below the stamens, styles 2, flowers in compact.

Cus'cuta Epithy'mum (43). Lesser Dodder. 7—8. Stems very slender, (1013) reddish heads, small globular compact, sepals acute, stamens exserted. *On Furze, Thyme, and Ling.* [F. Rg. W. Tb. Wl.

Cus'cuta europæ'a (31). Greater Dodder. Stems thick yellow and reddish, (1012) heads globular ½—¾ in. diameter, sepals obtuse, stamens included. *On Nettles and Vetches.* [W. Tb.

ORDER 49.—Solanaceæ.

Calyx 5-partite persistent. Corolla gamopetalous of 5 petals rotate or campanulate. Stamens 5 short epipetalous as many as and alternate with the segments of the corolla. Ovary superior 2-celled many-seeded. Placentation axile. Fruit a many-seeded capsule or berry.

Corolla campanulate, 409
Corolla rotate, white or purple, ... Solanum II.
409 Flowers greenish purple, ... Atropa III.
409 Flowers yellow, ... Hyoscyamus I.

I.—*HYOSCYAMUS.*

HYOSCY'AMUS NI'GER (78). Henbane. 6—9. Stem 1—2 ft. high (1020) stout branching, leaves oblong amplexicaul toothed, corolla 1—1¼ in. diameter yellow veined with purple, lobes broad, fruit enclosed in the enlarged calyx. *Waste places.*

II.—*SOLANUM.*

SOLA'NUM NI'GRUM (61). Nightshade. 8—10. Stem herbaceous (1016) 6—24 in. high, leaves ovate, flowers white few drooping, berries black. *Waste places.*

SOLA'NUM DULCAMA'RA (96). Woody Nightshade or Bittersweet.
(1015) 7—9. Stem shrubby climbing 4—6 ft. high, leaves cordate, flowers many drooping purple with yellow anthers, berries red. *Hedges.*

III.—*ATROPA.*

At'ropa Belladon'na (33). Deadly Nightshade. Stem 2—3 ft. stout,
(1018) leaves ovate acuminate, flowers solitary shortly pedunculate axillary, corolla 1 in. long, dull purplish blue campanulate with 5 broad lobes, berry large globular black. [R. W. L.

Amongst cultivated plants belonging to this Order are the Potato (*Solanum tuberosum*), Tomato (*S. Lycopersicum*), Tobacco (*Nicotiana*), Cayenne-Pepper (*Capsicum*), and Winter-cherry (*Physalis*).

ORDER 50.—Scrophulariaceæ.

Calyx gamosepalous persistent often unequal. Corolla gamopetalous irregular, limb more or less 2-lipped. Stamens usually didynamous epipetalous. Ovary superior 2-celled many-seeded not 4-lobed. Style terminal.

Stamens 2, ... Veronica I.
Stamens 4, 410
Stamens 5, ... Verbascum II.
410 Calyx 4-cleft, 411
410 Calyx 5-cleft, 412
411 Upper lip of corolla vertically compressed, 413
411 Upper lip entire or bifid not compressed, 414
412 Calyx inflated, ... Pedicularis III.
412 Calyx tubular, not inflated, 415
413 Calyx inflated, ... Rhinanthus IV.
413 Calyx tubular, ... Melampyrum V.
414 Upper lip of corolla entire, ... Bartsia VI.
414 Upper lip of corolla bifid, ... Euphrasia VII
415 Corolla personate, 416
415 Corolla not personate, 417
416 Corolla spurred at the base, ... Linaria VIII.
416 Corolla saccate at the base, not spurred, . . Antirrhinum IX.
417 Flowers small, short, ... Scrophularia X.
417 Flowers large, 418
418 Flowers purple, ... Digitalis XI.
418 Flowers yellow, ... Mimulus XII.

I.—*VERONICA.*

Leaves opposite, flowers in axillary or terminal racemes, calyx 4—5-partite, corolla rotate 4-partite, lobes unequal, stamens 2.

Bracts resembling the cauline leaves, flowers axillary solitary, 420

Bracts smaller than the cauline leaves, and not the same shape, 419

419 Flowers in spikes, ... **V. arvensis.**

419 Flowers in racemes, 422

420 Leaves cordate 5—7-lobed, ... V. hederæfolia.

420 Leaves cordate and serrate but not lobed 421

421 Corolla less than ½ inch, 423

421 Corolla more than ½ inch, ... V. Buxbaumii.

422 Racemes terminal, ... V. serpyllifolia.

422 Racemes axillary, 424

423 Sepals oblong obtuse, lower petals white, ... V. agrestis.

423 Sepals ovate acute, petals all blue, ... V. polita.

424 Marsh plants, 425

424 Land plants, 426

425 Racemes alternate, ... **V. scutellata.**

425 Racemes opposite, 427

426 Racemes usually alternate, 428

426 Racemes usually opposite, ... V. Chamædrys.

427 Stem erect, leaves lanceolate acute, ... V. Anagallis.

427 Stem procumbent at the base, leaves elliptical obtuse, ... V. Beccabunga.

428 Leaves elliptical, capsule obcordate, . . V. officinalis.

428 Leaves ovato-cordate, capsules orbicular, . V. montana.

VERONI'CA ARVEN'SIS (109). Wall Speedwell. 4—7. Stem 4—12 (1054) inches high, leaves cordate ovate crenate, flowers minute pale-blue with a white eye in a terminal raceme with very short pedicels and crowded leafy bracts almost forming a spike, bracts lanceolate entire longer than the flowers, capsule obcordate. *Dry places.*

VERONI'CA HEDERÆFO'LIA (96). Ivy-leaved Speedwell. 4—9. (1048) Stem 4—8 in. high, leaves cordate or broadly ovate 5—7-lobed, flowers pale-blue axillary solitary, peduncles ½—¾ in. long. *Banks.*

VERONI'CA SERPYLLIFO'LIA (111). Thyme-leaved Speedwell. (1056) 5—6. Stem 3—10 in. high, leaves broadly ovate or oblong somewhat obtuse somewhat coriaceous very slightly crenate, flowers ¼ in. diameter white or blue in terminal many-flowered racemes, bracts alternate lanceolate about as long as the flowers, pedicels short erect, capsule deeply notched. *Moist waste places.*

VERONI'CA AGRES'TIS (107). Field Speedwell. 4—9. Stem 4—8
(1050) in. high, leaves pale-green ovato-cordate coarsely serrate, flowers minute pale blue or white axillary solitary, pedicels bending down, capsule rounded and deeply lobed. *Waste places.*

VERONI'CA POLI'TA (87). Characters of V. agrestis but with a bright
(1049) blue corolla and greyish leaves broader and more deeply and irregularly serrate. *Waste places.*

VERONI'CA SCUTELLA'TA (100). Marsh Speedwell. 7—8. Stem
(1065) 6—18 in. high slender glabrous, leaves sessile linear-lanceolate slightly toothed, corolla ½ in. diameter white or pinkish in alternate axillary racemes. *Bogs and ditches.*

VERONI'CA BUXBAU'MII (80). 4—9. Stem prostrate, 6—12 in.,
(1051) leaves 1 in. shortly petioled oblong or ovato-cordate coarsely serrate, sepals lanceolate spreading in fruit, lobes of capsule diverging, flowers large bright blue solitary axillary, peduncles long. *Fields.*

VERONI'CA CHAMÆDRYS (111). Germander Speedwell. 5—6
(1063) Stem 1—2 ft. high hairy on opposite sides, leaves sessile ovato-cordate deeply serrate, flowers ⅓—½ in. diameter bright blue in opposite axillary racemes. *Banks.*

VERONI'CA ANAGAL'LIS (97). Water Speedwell. 7—8. Stem
(1006) stout 1—2 ft. high glabrous not much branched, leaves sessile lanceolate serrate, corolla ⅛ inch diameter pale lilac or white, flowers in opposite axillary ascending racemes. *Wet places.*

VERONI'CA BECCABUN'GA (116). Brooklime. 5—9. Stem 1—2
(1067) ft. high procumbent glabrous succulent, leaves petiolate oblong obtuse serrate, flowers ½ in. diameter blue in opposite axillary racemes. *Ditches.*

VERONI'CA OFFICINA'LIS (111). Common Speedwell. 5—7.
(1062) Stems 2—10 in. high hairy all round, leaves varying from elliptical to orbicular, shortly petioled serrate, corolla ⅛ in. diameter flowers pale-blue in slender many-flowered axillary racemes. *Dry places.*

VERONI'CA MONTA'NA (86). Mountain Speedwell. 5—6. Stem
(1064) 1—2 ft. high hairy diffuse, leaves ovate-cordate serrate, corolla ¼ in. diameter, flowers pale-blue or white in short axillary racemes. *Moist woods.*

II.—*VERBASCUM.*

Stamens 5, corolla rotate, segments 5 nearly equal.

Plant glabrous, ... V. Blattaria.
Plant downy or hairy, 429
429 Leaves decurrent, ... V. Thapsus.
429 Leaves not decurrent, 430
430 Flowers in racemes, ... V. nigrum.
430 Flowers in panicles, ... V. Lychnites.

Verbas'cum Blatta'ria. Moth Mullein. 6—10. Stem erect 1—4 ft.,
(1026) radical leaves oblong coarsely toothed, cauline leaves ovate sessile, flowers bright yellow, 1 in. diameter in a loose few-flowered raceme, plant glabrous or nearly so. [W.

Verbas'cum Lychni'tis (12). White Mullein. 7—8. Stem angled 2—3
(1023) ft. erect, leaves glabrous and green above white and downy beneath, radical leaves petiolate oblong crenate, cauline leaves sessile ovate, flowers whitish ⅛ in. diameter numerous in a narrow panicle. [L. Tb.

VERBAS'CUM THA'PSUS (90). Great Mullein. 6—8. Stem 2—3
(1021) ft. high stout, leaves decurrent woolly on both sides, flowers yellow ¾—1 in. diameter in a dense woolly spike, hairs of filaments white. *Chalky Banks.*

Verbas'cum ni'grum (42). Dark Mullein. 6—10. Stem angular, leaves
(1024) not decurrent glabrous above, flowers yellow in a slender raceme, hairs of filaments purple. [Wl.

III.—*PEDICULARIS.*

Calyx inflated segments jagged somewhat leafy, corolla 2-lipped pink, leaves pinnate segments toothed.

PEDICULA'RIS PALUS'TRIS (107). Marsh Lousewort. 5—9.
(1072) Stem erect, not branched at the base, calyx hairy ribbed. *Marshes.*

PEDICULA'RIS SYLVAT'ICA (112). Field Lousewort. 4—7.
(1073) Stem branched at the base, spreading, calyx angled glabrous. *Moist Meadows.*

IV.—*RHINANTHUS.*

RHINAN'THUS CRISTA-GAL'LI (112). Yellow Rattle. 5—7.
(1078) Stem 6—48 inches erect, leaves opposite lanceolate serrate, flowers yellow in a spike with ovate bracts longer than the calyx, calyx inflated 4-toothed, corolla gaping, upper lip compressed vertically, lower lip 3-lobed lobes spreading, capsule flattened enclosed by the bladder-like calyx. *Damp pastures.*

V.—*MELAMPYRUM.*

Calyx tubular 4-toothed, corolla 2-lipped, tube cylindrical, upper lip short compressed margins revolute, lower lip 3-lobed.

MELAMPY'RUM PRATEN'SE (105). Cow-wheat. 5—8. Stem
(1076) 6—18 inches high erect, leaves lanceolate, flowers yellow axillary in pairs, upper bracts toothed, corolla four times as long as the calyx, lips closed. *Copses.*

Melampy'rum sylvat'icum (21). Wood Cow-wheat. 7—8. Flowers
(1077) yellow axillary in pairs, corolla not much longer than the calyx, lips not closed, bracts all entire.

VI.—*BARTSIA.*

Calyx tubular 4-cleft, corolla 2-lipped, upper lip entire arched, sides not reflexed, lower lip 3-lobed, lobes bent back, stamens didynamous hidden by the upper lip.

Bart'sia alpi'na (8). Alpine Bartsia. 6—8. Stem 4—8 inches high,
(1071) leaves sessile ovate bluntly serrate, upper leaves cordate amplexicaul, flowers dull purple, in a short few-flowered leafy spike.
[G. (*Between Gordale and Malham Tarn.*)

BART'SIA ODONTI'TES (111). Red Bartsia. 6—8. Stem 6—18
(1069) inches high, leaves linear-lanceolate distantly serrate, flowers red in unilateral racemes. *Waste places.*

VII.—*EUPHRASIA.*

EUPHRA'SIA OFFICINA'LIS (111). Eyebright. 5—9. Stem 1—8
(1068) inches high with many opposite branches, leaves sessile ovate deeply serrate, flowers in terminal spikes with leafy bracts, corolla $\frac{1}{8}$—$\frac{1}{2}$ inch, white or lilac with purple veins, upper lip concave 2-lobed, lower lip spreading nearly equally 3-lobed, mid lobe yellow. *Heaths.*

VIII.—*LINARIA.*

Calyx 5-partite, corolla personate, spurred at the base.

Stem prostrate or trailing, 431
Stem erect, 432
431 Stem glabrous, ... L. Cymbalaria.
431 Stem hairy, 433
432 Stem tall, ... L. vulgaris.
432 Stem under 6 inches, ... L. minor.
433 Leaves hastate, ... L. Elatine.
433 Leaves ovate, ... L. spuria.

LINA'RIA CYMBALA'RIA. Ivy-leaved Toad-flax, Mother of thousands.
(1028) 5—9. Stem 6—24 inches long trailing, leaves reniform 5-lobed glabrous, flowers blue purple solitary, peduncles long and slender. *Old walls.*

LINA'RIA VULGA'RIS (98). Yellow Toad-flax. 7—10. Stem 1—2
(1035) feet high erect, leaves linear crowded, flowers yellow in a dense imbricated raceme. *Banks.*

Lina'ria spu'ria (43). 7—10. Stem 4—18 in. erect hairy, leaves nearly
(1030) sessile ovate bluntly toothed, corolla $\frac{1}{3}$ in. yellow, upper lip purple, seeds warted.
[Rg. W. L. Tb. F.

LINA'RIA ELAT'INE (55). 7—10. Stem prostrate hairy, leaves (1029) shortly petiolate hastate or ovate, corolla ¼ in. yellow, upper lip purple, seeds warted. *Sandy cornfields.*

LINA'RIA MI'NOR (60). Stem 3—4 in. erect, much branched, leaves (1036) linear or oblong, corolla ¼ in. pale purple, flowers axillary solitary on long peduncles, seeds furrowed. *Chalky cornfields.*

IX.—*ANTIRRHINUM.*

Calyx 5-partite, corolla personate, swollen but not spurred at the base.

ANTIRRHI'NUM MA'JUS. Snapdragon. 7—9. Stem 1—2 feet high, (1037) leaves lanceolate, flowers purple white yellow or crimson, in dense racemes. *Old walls.*

X.—*SCROPHULARIA.*

Calyx 5-lobed, corolla dull purple or green nearly globose, lips short, the upper 2-lobed with a scale on the inner surface, the lower 3-lobed.

SCROPHULA'RIA NODO'SA (106). Knotted Figwort. 7—9. Stem (1041) 4-angled, leaves ovate somewhat cordate acuminate serrate, teeth largest at the base. *Moist places.*

SCROPHULA'RIA AQUAT'ICA (70). Water Figwort. 7—9. Stem (1039) 4-winged, leaves oblong lanceolate obtuse serrate teeth largest upwards. *Marshes.*

XI.—*DIGITALIS.*

DIGITA'LIS PURPU'REA (107). Foxglove. 7—9. Calyx 5-lobed, (1047) lobes unequal, corolla irregularly bell-shaped with 4—5 shallow lobes, flowers purple in a long terminal raceme. *Banks and woods.*

XII.—*MIMULUS.*

MIM'ULUS LU'TEUS. Monkey-flower. 7—9. Stems ½—3 ft. prostrate (1044) or erect, leaves ovato-oblong coarsely toothed, flowers 1—2 in. yellow with purple spots solitary axillary, calyx 5-angled 5-toothed, corolla 2-lipped, upper lip 2-lobed erect, lower lip spreading 3-lobed. *Riversides, etc., common in gardens.*

ORDER 51.—Orobanchaceæ.

Brownish leafless herbs parasitic on the roots of other plants. Calyx persistent. Corolla irregular, usually 2-lipped. Stamens didynamous epipetalous. Pistil superior syncarpous of 2 carpels. Style one. Stigma 2-lobed.

Corolla 4—5-cleft, base of corolla persistent, . .	Orobanche I.
Corolla 2-lipped, deciduous, ...	Lathræa II.

I.—*OROBANCHE.*

Sepals usually 4, corolla gaping, upper lip 2-lobed, lower lip spreading 3-lobed.

Stem 1—3 ft. high, 434
Stem less than 1 ft., 435

434 Plant brown, ... O. major.
434 Plant yellow, ... O. elatior.

435 Plant red-brown, 436
435 Plant yellowish-brown or purple, ... O. minor.

436 Sepals entire, ... O. rubra.
436 Sepals bifid, ... O. Caryophyllacea.

Oroban'che ru'bra (12). Red Broom-rape. 7—8. Stem 4—8 inches (1084) high, calyx of 2 lateral 1-nerved sepals longer than the tube of the corolla, flowers dull red in a lax spike, corolla with the tube slightly curved, lips toothed, upper one 2-lobed lower one 3-lobed. *Parasitic on Thyme.* [G. (*Attermire, Malham Tarn.*)

Oroban'che mi'nor. Least Broom-rape. 6—10. Stem 6—24 in. high, (1089) sepals 1 or many-nerved with long slender points, corolla yellow brown or purplish, tube contracted in the middle. *Parasitic on Clover.* [F. G. (*Malham*), M. L.

OROBAN'CHE MA'JOR (58). Greater Broom-rape. Stem stout (1083) 1—2 ft. swollen at the base brown, sepals 1—3 nerved nearly as long as the corolla tube, corolla 1 in., yellow and purplish, upper lip entire, lower lip 3-lobed, filaments glabrous below glandular above. *Parasitic on Broom and other shrubby Leguminosæ.*

OROBAN'CHE ELA'TIOR (25). Tall Broom-rape. Resembling O. major (1086) but of a yellow colour, lobes of corolla more nearly equal and more toothed, filaments glandular below, glabrous above. *Parasitic on Centaurea Scabiosa.* [M. H.

Oroban'che caryophylla'cea (2). Clove-scented Broom-rape. 6. Stem (1085) 6—12 in., flowers large in a lax spike, corolla 1 in. reddish brown or purplish sweet-scented, stigma purple. *Parasitic on Galium.* [L.

II.—*LATHRÆA.*

LATHRÆ'A SQUAMA'RIA (61). Great Tooth-wort. 4—5. Stem (1091) 4—10 in. high, stout scaly branching from the base, flowers brownish purple drooping in 1-sided racemes, lower lip of the corolla 3-cleft. *On roots of Hazel and other trees.*

ORDER 52.—Verbenaceæ.

Calyx tubular inferior. Corolla tubular 2-lipped. Stamens didynamous epipetalous. Ovary 2 or 4-celled. Style terminal.

VERBE'NA OFFICINA'LIS (67). Vervain. 7—9. Stem 1—2 ft. (1101) high, 4-angled, leaves opposite pinnatifid or tri-partite, flowers lilac in long dense spikes. *Dry waste ground.*

ORDER 53.—Labiatæ.

Calyx gamosepalous of 5 sepals. Corolla gamopetalous 2-lipped. Stamens didynamous epipetalous. Pistil syncarpous superior. Ovary deeply 4-lobed, style basilar. Stem 4-angled. Leaves opposite, flowers in whorls.

Stamens 2, 437
Stamens 4, 438

437 Calyx 2-lipped, ... Salvia XIV.
437 Calyx 5-toothed, ... Lycopus I.

438 Stamens 2 much longer than the other 2, 439
438 Stamens nearly equal in length, 441

439 Calyx equally toothed, 440
439 Calyx 2-lipped, 443

440 Calyx 10-toothed, ... Marrubium VIII.
440 Calyx 5-toothed, 442

441 Corolla nearly regular, ... Mentha II.
441 Corolla 2-lipped, 445

442 Upper lip of corolla minute, 446
442 Upper lip of corolla longer than stamens, 447

443 Lips of calyx entire, ... Scutellaria XVII
443 Upper lip of calyx trifid, lower bifid, 444

444 Calyx campanulate 4 or 5-toothed, . . Melittis IX
444 Upper lip of calyx trifid, lower bifid, 448

445 Procumbent, calyx 2-lipped, ... Thymus III.
445 Erect, calyx 5-toothed, ... Origanum IV.

446 Upper lip of corolla deeply bifid, . . . Teucrium VI.
446 Upper lip of corolla entire or only slightly notched, . Ajuga VII.

447 Lower lip of corolla entire with one or two small teeth at each side, ... Lamium XI.
447 Lower lip of corolla trifid, 449

448 Stamens parallel, ... Prunella XVI.
448 Stamens remote at base conniving under the upper lip, ... Calamintha V.

449 Upper or inner stamens the longest, ... Nepeta XV.
449 Lower or outer stamens the longest 450

450 Anthers ciliate, ... Galeopsis XII.
450 Anthers glabrous, 451
451 Calyx campanulate, lateral lobes of lower corolla lip reflexed, ... Stachys XIII.
451 Calyx tubular, lower corolla lip 3-lobed, lobes spreading (*flowers yellow—see Lamium*), . . Ballota X.

I.—*LYCOPUS.*

LYC'OPUS EUROPÆ'US (90). Gipsywort. 6—9. Calyx campanulate
(1116) 5-toothed, corolla 4-cleft nearly regular, stamens 2, stem 1—3 ft. erect, leaves ovato-oblong deeply serrate or pinnatifid, flowers white minute in dense whorls sessile in the axils of the upper leaves. *Ditches.*

II.—*MENTHA.*

Calyx 5-toothed, corolla nearly regular scarcely longer than the calyx 4-cleft.

Flowers in whorls in a terminal spike 452
Flowers in axillary whorls shorter than the leaves not in a terminal spike, 453
452 Upper leaves sessile, 454
452 Leaves petiolate, 455
453 Upper leaves smallest, calyx-teeth acute, . . . M. sativa.
453 Leaves all same size, calyx-teeth as broad as long, . M. arvensis.
454 Leaves broadly ovate, ... M. rotundifolia.
454 Leaves lanceolate, 456
455 Glabrous, spike lax, ... M. piperita.
455 Hairy, spikes terminal axillary dense, . . . M. aquatica.
456 Leaves glabrous, ... M. viridis.
456 Leaves hairy, ... M. sylvestris.

MEN'THA SYLVES'TRIS (58). Horsemint. 8—9. Stem 2—3 ft.
(1104) robust erect downy, leaves sessile lanceolate or ovate serrate hoary beneath, flowers numerous small in dense cylindric terminal or axillary spikes. *Moist waste places.*

MEN'THA SATI'VA (83). Marsh Whorled-mint. 7—8. Leaves
(1109- petiolate ovate-lanceolate acutely serrate upper leaves smaller, calyx-
1113) teeth lanceolate acuminate, flowers lilac in dense distant whorls. *Wet waste places.*

MEN'THA ARVEN'SIS (100). Corn Mint. 8—9. Leaves petiolate
(1114) ovato-lanceolate obtusely serrate all about the same size, calyx-teeth triangular, flowers lilac in axillary whorls. *Cornfields.*

MEN'THA ROTUNDIFO'LIA (50). Round-leaved Mint. 8—9.
(1102) Leaves sessile broadly ovate obtuse crenate wrinkled above shaggy beneath, flowers white or pink in a terminal interrupted spike. *Wet places.*

MEN'THA VIR'IDIS. Spear-mint. 8—9. Leaves lanceolate acute ser-
(1105) rate, flowers lilac in a slender terminal interrupted spike, smell very pungent. (The mint of gardens). *Wet places.*

MEN'THA PIPERI'TA (64). Peppermint. 8—9. Leaves petiolate
(1106) glabrous ovate acute-serrate, flowers lilac in a dense cylindrical terminal interrupted spike. *Wet places.*

MEN'THA AQUAT'ICA (104). Water-mint. 8—9. Covered with
(1107-1108) soft hairs, leaves ovate serrate, upper leaves shorter than the flowers resembling bracts, flowers lilac or purplish in dense terminal heads and axillary whorls. *Marshes.*

III.—*THYMUS.*

THY'MUS SERPYL'LUM (111). Thyme. 6—8. Calyx 2-lipped
(1118) upper lip 3-toothed lower 2-toothed throat hairy, corolla short upper lip notched lower 3-lobed, stem prostrate, flowering stems erect, leaves oblong or ovate small, flowers small rose-purple in capitate whorls, very aromatic. *Dry heaths.*

IV.—*ORIGANUM.*

ORIG'ANUM VULGA'RE (89). Marjoram. 7—9. Calyx 5-toothed
(1117) throat hairy, corolla 2-lipped upper lip notched lower 3-lobed, stem erect branched, leaves broadly ovate, flowers small purple with large coloured imbricated bracts in a crowded panicle. *Dry hills.*

V.—*CALAMINTHA.*

Calyx 2-lipped, corolla-tube straight, throat naked upper lip erect somewhat flat, longer than the stamens, lower lip 3-lobed spreading.

Calyx-tube curved, ... C. Acinos.

Calyx-tube straight, 457

457 Flowers large, ... C. Clinopodium.

457 Flowers small, ... C. officinalis.

CALAMIN'THA A'CINOS (74). Basil Thyme. 7—8. Stem 3—6 in.
(1121) more or less branched, leaves petiolate ovate acuminate serrate, flowers purple spotted with white and darker purple in whorls of 5 or 6, calyx-tube bent. *Dry banks and fields.*

CALAMIN'THA OFFICINA'LIS (61). Calamint. 7—9. Stem 1—3
(1123) ft. hairy, leaves ovate crenate, flowers purple in loose one-sided cymes, corolla ½—½ in., calyx-tube straight with spreading triangular teeth. *Dry waste places.*

CALAMIN'THA CLINOPO'DIUM (85). Wild Basil. 7—9. Stem
(1120) 1—3 feet slender, calyx-tube straight, teeth slender bristly, corolla ¾—1 in., leaves ovate toothed, flowers purple crowded in whorls. *Copses and dry rocky places.*

VI.—*TEUCRIUM.*

TEU'CRIUM SCORODO'NIA (108). Wood Germander. 7—8. Calyx
(1159) somewhat 2-lipped upper lip ovate lower lip 4-toothed, corolla-tube short upper lip short deeply 2-cleft lower lip 3-cleft middle lobe largest, leaves ovato-cordate wrinkled, flowers small yellowish-white, in one-sided terminal and lateral racemes. *Woods and heaths.*

VII.—*AJUGA.*

Calyx 5-toothed, corolla-tube long, upper lip short slightly notched, lower lip longer spreading 3-cleft lateral lobes oblong, middle lobe broader notched, flowers blue or yellow.

A'JUGA REP'TANS. Bugle. 5—6. Glabrous, flowers purplish blue
(1160) in dense whorls forming a loose spike with spreading bracts, cauline leaves sessile oblong entire. *Moist woods.*

A'juga Chamæ'pitys. Yellow Bugle. 5—9. Hairy, flowers yellow in
(1162) axillary pairs much shorter than the leaves, cauline leaves tripartite with linear lobes. [W.

VIII.—*MARRUBIUM.*

MARRUB'IUM VUL'GARE (65). White Horehound. 7—11. Stem
(1134) 1—1½ ft. stout leafy branched woolly, leaves broadly ovate crenate, flowers white in dense whorls, calyx with 10 hooked teeth, corolla ½ in. upper lip narrow bifid lower lip spreading 3-lobed middle lobe broadest. *Waste places.*

IX.—*MELITTIS.*

Melittis Melissophyllum (9). Bastard-Balm. 5—6. Stem 1—2 ft. erect
(1133) nearly simple, leaves ovate serrate slightly hairy, flowers purple large 2—6 in a whorl, calyx broadly campanulate 2—3 lobed, corolla 1—1½ in., tube broad, lower lip 3-lobed white spotted with purple. [Nt.

X.—*BALLOTA.*

BALLO'TA NI'GRA (76). Black Horehound. 6—10. Calyx longer
(1155) than the corolla-tube tubular or funnel-shaped with 5 equal mucronate teeth, corolla with the upper lip erect concave, lower lip about as long 3-lobed spreading, mid lobe obcordate, leaves ovate serrate, flowers pale reddish-purple 3—6 in a whorl, whole plant fœtid dull green hoary or woolly. *Hedge banks.*

XI.—*LAMIUM.*

Calyx campanulate 5-toothed 10-ribbed, corolla-tube inflated, upper lip arched, lower lip entire prominent with contracted base and one or two teeth on each side, flowers purple white or yellow in many-flowered whorls.

Flowers yellow, ... L. Galeobdolon.

Flowers red white or purple, 458

458 Flowers white, ... L. album.

458 Flowers red or purple, 459

459 Upper leaves sessile orbicular, . . . L. amplexicaule.

459 Leaves petiolate cordate, 460

460 Tube of corolla longer than the calyx, . . . L. purpureum.

460 Tube of corolla shorter than the calyx, ... L. incisum.

LA'MIUM GALEOB'DOLON (61). Archangel. 5—6. Corolla-tube (1154) curved with a ring of hairs inside, upper lip arched, lower lip nearly equally 3-lobed, middle lobe spotted red-brown, leaves ovate acuminate serrate. *Thickets.*

LA'MIUM AL'BUM (100). White Deadnettle. 5—9. Corolla-tube (1153) curved with a ring of hairs, lower lip with one obcordate lobe and lateral teeth, upper lip arched, leaves cordate serrate. *Waste places.*

LA'MIUM AMPLEXICAU'LE (91). Henbit Deadnettle. 5—8. (1148, Corolla-tube straight without hairs, lower lip with one obcordate lobe 1149) and lateral teeth, leaves petiolate orbicular deeply crenate, flowers slender rose-coloured. *Waste sandy places.*

LA'MIUM PURPU'REUM (110). Red Deadnettle. 4—10. Corolla- (1151) tube straight with a ring of hairs longer than the calyx-teeth, lower lip with one prominent obcordate lobe and 1—2 lateral teeth, leaves petiolate cordate crenate, flowers purple. *Fields and waste places.*

LA'MIUM INCI'SUM (73). Cut-leaved Deadnettle. 4—10. Similar (1150) to L. purpureum but with leaves deeply serrate, the corolla-tube shorter than the calyx and almost without hairs. *Fields and waste places.*

XII.—*GALEOPSIS.*

Corolla-tube straight naked inside, upper lip ovate arched, lower lip 3-cleft, middle lobe obcordate or bifid, leaves ovate acute serrate.

Stem not swollen at the joints, ... G. Ladanum.

Stem swollen at the joints, 461

461 Flowers purple or white, ... G. Tetrahit.

461 Flowers yellow, ... G. versicolor.

GALEOP'SIS LAD'ANUM (73). Red Hempnettle. 7—10. Stem (1142) 10—12 in., flowers rose-coloured, leaves lanceolate serrate downy. *Cornfields and waste places.*

GALEOP'SIS TET'RAHIT (112). Common Hempnettle. 7—9. Stem
(1146) 1—2 ft., flowers yellow and purple or white, leaves ovate acuminate coarsely serrate hispid. *Cornfields and waste places.*

GALEOP'SIS VERSIC'OLOR (80). Large-flowered Hempnettle.
(1145) 7—8. Stem 2—3 ft. high, corolla 1—1½ in. long yellow with a broad purple spot on the lower lip, leaves like those of G. Tetrahit but coarser and more hispid. *Waste places and cornfields.*

XIII.—*STACHYS.*

Calyx campanulate, 5-toothed, tube of the corolla as long as the calyx, upper lip arched, lower lip 3-lobed, lateral lobes reflexed.

Inflorescence an elongate interrupted spike, 462
Inflorescence a short dense terminal spike, . . . S. Betonica.
462 Stem erect, 463
462 Stem weak decumbent, ... S. arvensis.
463 Stem hollow, leaves linear lanceolate, ... S. palustris.
463 Stem solid, leaves ovate, ... S. sylvatica.

STA'CHYS BETON'ICA (81). Wood Betony. 6—8. Flowers purple
(1135) in whorls forming a short dense terminal spike, leaves oblong cordate deeply crenate, cauline leaves few narrower than the radical leaves. *Copses and roadsides.*

STA'CHYS ARVEN'SIS (95). Corn Woundwort. 4—11. Stem weak
(1140) decumbent, leaves ovate or oblong obtuse, corolla ⅛ inch long pale pink variegated with white scarcely longer than the calyx. *Cornfields and waste places.*

STA'CHYS PALUS'TRIS (109). Marsh Woundwort. 7—8. Stem
(1137) hollow, leaves linear-lanceolate cordate at the base sessile, lower leaves shortly stalked, flowers purple in whorls forming an elongate interrupted spike. *Moist places.*

STA'CHYS SYLVAT'ICA (108). Hedge Woundwort. 7—8. Stem
(1139) solid, leaves petiolate ovate cordate serrate, corolla ⅓—⅔ in. dull purplish red lower lip variegated with white, flowers in whorls forming an interrupted spike 4—8 in. long. *Woods and roadsides.*

XIV.—*SALVIA.*

SAL'VIA VERBENA'CA (64). Sage. 6—9. Stem 1—2 ft. erect
(1126) leafy, leaves oblong irregularly serrate wrinkled, flowers purplish blue 6 in a whorl in long terminal hairy spikes, upper lip of corolla short compressed, stamens 2, connective long and slender hinged to the filament. *Dry pastures and waste places.*

XV.—*NEPETA.*

Calyx tubular 5-toothed, upper lip of corolla straight notched or bifid, lower lip trifid, middle lobe large obcordate, flowers blue yellow or white.

NEP'ETA GLECHO'MA (102). Ground Ivy. 3—6. Stem procumbent,
(1129) leaves reniform deeply crenate, flowers blue or purple 3—6 in a whorl axillary. *Waste places.*

NEP'ETA CATA'RIA (56). Cat mint. 7—9. Stem erect 2—3 feet
(1128) very leafy, leaves cordato-ovate serrate, flowers white numerous in many-flowered whorls forming dense terminal spikes. *Banks and waste places.*

XVI.—*PRUNELLA.*

PRUNEL'LA VULGA'RIS (112). Self-heal. 7—8. Flowers purple
(1132) about 6 in a whorl surrounded by orbicular leaf-like bracts crowded in a dense terminal spike, upper lip of corolla erect lower spreading 3-lobed, leaves ovato-oblong. *Moist pastures.*

XVII.—*SCUTELLARIA.*

Upper lip of the calyx inflated, tube of the corolla much longer than the calyx, lobes of corolla-lips short, flowers axillary in pairs.

SCUTELLA'RIA GALERIC'ULATA (97). Skull-cap. 7—8. Stem
(1130) 6—18 in., leaves 1—2 in. ovate crenate or serrate, flowers blue variegated with white ⅔ in. *Marshy places.*

SCUTELLA'RIA MI'NOR (66). Lesser Skull-cap. 7—10. Stem
(1131) 4—6 in., leaves ⅓—1 in. ovate almost entire, flowers pink or purple ⅓ in. *Marshy places.*

The Rosemary (*Rosmarinus officinalis*) and Lavender (*Lavandula vera*) of gardens belong to this Order.

ORDER 54.—Boraginaceæ.

Calyx inferior 5-partite persistent. Corolla gamopetalous regular usually 5-cleft. Stamens epipetalous as many as and alternate with the lobes of the corolla. Ovary deeply 4-cleft, style basilar, leaves alternate rough.

Throat of corolla without scales, 464
Throat of corolla closed by scales, 465

464 Corolla irregular, ... Echium IX.
464 Corolla regular, 470

465 Stamens exserted, ... Borago IV.
465 Stamens included, 466

466 Scales subulate, ... Symphytum III.
466 Scales obtuse, 467
467 Corolla-tube slightly bent, limb oblique, . . . Lycopsis V.
467 Corolla-tube straight, 468
468 Nutlets smooth, ... Myosotis I.
468 Nutlets rough, 469
469 Flowers bright blue, ... Anchusa VI.
469 Flowers reddish purple, ... Cynoglossum VII.
470 Tube of calyx long, ... Pulmonaria VIII.
470 Tube of calyx none, ... Lithospermum II.

I.—*MYOSOTIS.*

Radical leaves petiolate, cauline leaves sessile, flowers small blue in terminal scorpioid cymes, corolla rotate the throat closed by 5 short notched scales, style short, nutlets minute smooth attached by a small base to the receptacle.

Hairs of calyx straight adpressed, 471
Hairs of calyx hooked spreading, 472
471 Hairs of stem spreading, corolla large, 473
471 Hairs of stem adpressed, corolla small, . . M. cæspitosa.
472 Pedicels longer than the calyx, 474
472 Pedicels shorter than the calyx, 475
473 Calyx lobes triangular, stem rather stout, . M. palustris.
473 Calyx lobes acute, stem very slender, . . . M. repens.
474 Corolla ⅛ in. diameter, ... M. sylvatica.
474 Corolla ⅛ in. diameter, ... M. arvensis.
475 Corolla bright blue, ... M. collina.
475 Corolla yellow changing to dull blue, . . M. versicolor.

MYOSO'TIS PALU'STRIS (98). True Forget-me-not. 6—8. Hairs (995) of calyx straight adpressed, hairs of stem spreading, calyx-lobes triangular about ⅓ the length of the tube, corolla ⅓—½ in. diameter sky-blue with yellow disk, leaves light green and shining, stem erect rather stout. *Wet places.*

MYOSO'TIS RE'PENS (84). Creeping Scorpion Grass. 6—8. Hairs (996) of calyx straight adpressed, hairs of stem spreading, calyx-lobes narrow acute longer than the tube, corolla ⅓ in. diameter sky-blue with yellow disk, stem very slender with creeping runners rooting at the tip. *Wet places.*

MYOSO'TIS CÆSPITO'SA (101). Tufted Scorpion-grass. 6—8. (994) Hairs of calyx and stem adpressed, calyx-lobes triangular nearly as long as the tube, corolla ⅛ in. diameter sky-blue with yellow disk, leaves bright green and shining. *Wet places.*

Myoso'tis sylvat'ica (42). Wood Scorpion-grass. 6—8. Hairs of calyx
(998) hooked spreading, hairs of stem spreading, calyx cleft nearly to the base, pedicels longer than the calyx, corolla ⅛ in. diameter bright blue. [G.

MYOSO'TIS ARVEN'SIS (111). Field Scorpion-grass. 6—8. Calyx
(999) cleft half-way with spreading hooked hairs, hairs of stem spreading, pedicels slender longer than the calyx, corolla ⅛ in. diameter pale blue. *Fields and waste places.*

MYOSO'TIS COLLI'NA (89). Early Field Scorpion-grass. 4—5.
(1000) Hairs of calyx hooked and spreading, pedicels shorter than calyx, corolla ⅛ in. diameter bright blue with a short tube, stem 3—10 in. high. *Dry banks.*

MYOSO'TIS VERSIC'OLOR (103). Yellow and Blue Scorpion-grass.
(1001) 4—5. Hairs of calyx hooked and spreading, pedicels shorter than calyx, corolla yellow then dull blue $\frac{1}{10}$ in. diameter with a long tube. *Damp meadows.*

II.—*LITHOSPERMUM.*

Calyx deeply 5-cleft, corolla regular its throat naked, stamens included within the corolla, filaments short, nutlets stony inserted by small flat bases on the flat receptacle.

LITHOSPER'MUM OFFICINA'LE (77). Common Gromwell.
(1004) 6—7. Stems many erect branched, leaves lanceolate, flowers pale yellow, nutlets smooth white. *Woods and copses.*

LITHOSPER'MUM ARVEN'SE (86). Corn Gromwell. 5—6. Stem
(1005) solitary erect branched, leaves linear oblong, flowers cream-white, nutlets grey wrinkled. *Cornfields and waste places.*

III.—*SYMPHYTUM.*

Calyx deeply 5-cleft, corolla campanulate, its tube short and throat closed by 5 awl-shaped scales, nutlets smooth inserted by a broad cup-like base on the flat receptacle.

SYM'PHYTUM OFFICINA'LE (85). Comfrey. 5—6. Stem stout
(985) broadly winged above, leaves ovato-lanceolate very decurrent hispid, flowers drooping white yellow red or purple in crowded cymes. *River banks and wet places.*

Sym'phytum tubero'sum (25). Tuberous Comfrey. 5—6. Stem rather
(986) slender hardly-winged hairy not hispid, leaves scarcely decurrent, flowers yellowish white, drooping in terminal forked cymes. [G. (*Ribble banks.*)

IV.—*BORAGO.*

BORA'GO OFFICINA'LIS. Borage. 6—7. Calyx 5-cleft, corolla ¾ in.
(987) diameter rotate its throat closed by 5 broad notched scales, stamens 5 inserted on the throat of the corolla, filaments stout, anthers linear purplish-black exserted forming a cone, stem 1—2 ft. stout leafy branched, leaves ovate waved, flowers bright blue in few-flowered terminal cymes. *Waste ground.*

V.—*LYCOPSIS.*

LYCOP'SIS ARVEN'SIS (99). Bugloss. 6—7. Calyx 5-cleft, corolla
(990) bright blue ¼ in. diameter funnel-shaped, tube bent its throat closed by 5 blunt white scales, stamens included, radical leaves obovate, cauline leaves linear-ovate waved and toothed very hispid, flowers almost sessile in terminal short usually forked cymes. *Waste places.*

VI.—*ANCHUSA.*

ANCHU'SA SEMPERVI'RENS. Alkanet. 5—6. Calyx 5-cleft, corolla
(989) bright blue ⅜ in. diameter funnel-shaped tube straight, throat closed by 5 blunt white scales, stamens included, leaves ovate acute very hispid, radical leaves oblong, cymes in pairs on peduncles 2—3 in. long each with a pair of ovate lanceolate bracts, pedicels very short.
[G. (*Wharfe.*)

VII.—*CYNOGLOSSUM.*

Calyx 5-cleft, corolla funnel-shaped its throat closed by prominent scales, stamens included, nutlets with hooked bristles inserted by broad surfaces on the thickened conical receptacle.

Leaves with numerous soft hairs, ... C. officinale.
Leaves with few stiff hairs, ... C. montanum.

CYNOGLOS'SUM OFFICINA'LE (85). Hound's tongue. 6—7.
(982) Leaves hoary with soft hairs radical leaves petiolate oblong, cauline leaves sessile lanceolate, flowers purplish red in racemes. *Fields and waste places.*

Cynoglos'sum monta'num (17). Green Hound's tongue. 5—7. Leaves
(983) rough with short spreading hairs oblong or lanceolate, flowers blue in cymes. [L.

VIII.—*PULMONARIA.*

PULMONA'RIA OFFICINA'LIS. Lungwort. 4—6. Stem hairy
(992) 1—1½ ft., leaves ovate blotched with pale green, flowers pale purple in terminal cymes, corolla funnel-shaped 5-cleft, stamens 5 included alternating with 5 pencils of hairs. [T.

IX.—*ECHIUM.*

E'CHIUM VULGA'RE (90). Viper's Bugloss. 6—7. Calyx 5-partite,
(1006) corolla unequally 5-lobed throat naked, stamens much protruded, nutlets inserted by a flat base on the flat receptacle, cauline leaves sessile anceolate acute rounded at the base, cymes 1 in. or more axillary recurved, flowers reddish-purple in bud then blue. *Waste ground.*

ORDER 55.—Lentibulariaceæ.

Calyx gamosepalous inferior persistent. Corolla gamopetalous hypogynous 2-lipped spurred. Stamens 2 epipetalous. Ovary 1-celled. Style very short, stigma 2-lipped. Fruit a many-seeded capsule, placenta large central.

Floating plants, ... **Utricularia I.**
Terrestrial plants, ... **Pinguicula II.**

I.—*UTRICULÀRIA.*

Floating plants with capillary root-like branches and leaves furnished with floating bladders, corolla personate.

UTRICULA'RIA VULGA'RIS (82). Common Bladder-wort. 7—8.
(1092) Stems 6—18 in., leaves numerous much divided, flowers rich yellow, spur half as long as the lip. *Pools and ditches.*

UTRICULA'RIA MI'NOR (68). Lesser Bladder-wort. Stems 3—10
(1094) in., leaves small very fine with few forked lobes, flowers pale yellow with hardly any spur. *Pools and ditches.*

II.—*PINGUICULA.*

PINGUI'CULA VULGA'RIS (91). Butterwort. 5—7. Leaves oblong
(1097) fleshy with incurved margins all radical arranged in a rosette, flowers purple on single-flowered scapes, corolla ringent. *Bogs.*

ORDER 56.—Primulaceæ.

Calyx gamosepalous inferior persistent 5-cleft. Corolla gamopetalous regular of 5 petals. Stamens 5 epipetalous opposite to the segments of the corolla. Ovary 1-celled, style 1, stigma capitate. Placentation free central.

Leaves entire, 476
Leaves pectinate, ... Hottonia V.
476 Leaves all radical, ... Primula I.
476 Leaves some cauline, 477
477 Corolla absent, ... Glaux II.
477 Corolla present, 478
478 Corolla yellow, ... Lysimachia III.
478 Corolla red, 479
478 Corolla white, ... Samolus VII.
479 Leaves opposite, ... Anagallis IV.
479 Leaves alternate, ... Centunculus VI.

I.—*PRIMULA.*

Calyx 5-toothed, corolla salver-shaped 5-lobed, leaves all radical wrinkled or mealy, fruit a many-seeded capsule opening by 5 valves.

PRI'MULA VULGA'RIS (111). Primrose. 4—5. Leaves obovate
(941) wrinkled and toothed, scapes 1-flowered, corolla pale yellow, limb flat. *Woods and banks.*

PRI'MULA VE'RIS (89). Cowslip. 5—6. Leaves wrinkled and
(942) toothed, flowers pale yellow in drooping umbels, corolla-limb cup-shaped. *Meadows.*

Pri'mula farino'sa (11). Bird's-eye Primrose. 6—7. Leaves mealy
(944) beneath not wrinkled, scape stout many-flowered, flowers pink erect or spreading. [G. (*Huntworth. River banks between Selside and Ling Gill. Scars above Feizor.* S.

II.—*GLAUX.*

GLAUX MARIT'IMA. Sea-milkwort. 6—7. Stem procumbent 3—5
(955) in., leaves ovate opposite glabrous fleshy, flowers rose-coloured sessile axillary, calyx 5-partite coloured $\frac{1}{6}$—$\frac{1}{4}$ in., corolla absent. *Muddy sea-shores.*

III.—*LYSIMACHIA.*

Corolla rotate 5-cleft yellow, calyx 5-partite, style filiform persistent, capsule globose opening by 5 valves.

LYSIMA'CHIA VULGA'RIS (75). Great yellow Loosestrife. Stem
(949) erect, 2—3 feet high, leaves opposite and whorled ovato-lanceolate, flowers axillary solitary or in terminal cymes. *River banks.*

LYSIMA'CHIA NUMMULA'RIA (67). Money-wort. 6—7. Stem
(952) prostrate, leaves opposite orbicular obtuse, peduncles axillary 1-flowered. *Damp places.*

LYSIMA'CHIA NEM'ORUM (105). Yellow Pimpernel. 5—8. Stem
(953) prostrate, leaves opposite ovate acute, peduncles axillary 1-flowered. *Shady places.*

IV.—*ANAGALLIS.*

Corolla rotate 5-cleft red, calyx 5-partite, capsule globose bursting transversely not by valves.

ANAGAL'LIS ARVEN'SIS (96). Pimpernel Poor-man's weather-
(956) glass. 5—11. Stem 6—18 in. erect or procumbent, leaves sessile ovate or lanceolate dotted beneath, flowers scarlet. *Waste places.*

ANAGAL'LIS TENEL'LA (93). Bog-Pimpernel. 7—8. Stem 3—4
(958) in. creeping, leaves shortly stalked broadly ovate not dotted, flowers pink. *Bogs.*

V.—*HOTTONIA.*

Hotto'nia palu'stris (48). Water Violet. 5—6. Flowering stem 1—2 ft.
(940) erect, leaves submerged whorled pectinate, flowers lilac in whorls forming a terminal raceme, corolla ¾ in. diameter salver shaped.
[F. R. Tb.

VI.—*CENTUNCULUS.*

CENTUN'CULUS MINI'MUS (62). Bastard Pimpernel. 6—7.
(959) Stem 1—3 in., leaves minute glabrous ovate, flowers pink, axillary numerous, corolla urceolate. *Wet sandy places.*

VII.—*SAMOLUS.*

SAM'OLUS VALERAN'DI (80). Brookweed. 6—9. Stem ½—2 ft. erect,
(960) radical leaves obovate spreading in a rosette, cauline leaves alternate, flowers white in terminal racemes, corolla campanulate 5-lobed with 5 small teeth between the lobes. *Wet ground and ditches.*

To this Order belong the cultivated *Cyclamen*, *Polyanthus*, and *Auricula.*

ORDER 57.—Plumbaginaceæ.

Calyx gamosepalous 5-cleft inferior tubular plaited. Corolla regular of 5 petals almost polypetalous, the petals cohering only at the base. Stamens 5 epipetalous opposite the petals. Styles and stigmas 5. Fruit indehiscent 1-celled 1-seeded.

Flowers in heads, ...	Armeria I.
Flowers in panicles, ...	Statice II.

I.—*ARMERIA.*

ARME'RIA MARIT'IMA (108). Thrift. Sea-pink. 4—9. Leaves
(938) all radical linear, flowers rose-coloured in hemispherical heads with a scarious involucre forming a sheath to the top of the scape. *Muddy shores and mountains.*

II.—*STATICE.*

STA'TICE LIMO'NIUM (35). Sea Lavender. 7—8. Leaves all
(934) radical elliptic-oblong mucronate, flowers small purple in a loose one-sided panicle. *Muddy shores.*

ORDER 58.—Plantaginaceæ.

Leaves usually all radical and strongly ribbed. Flowers small green usually in spikes. Calyx 4-partite. Corolla chaffy 4-partite. Stamens 4 epipetalous alternate with the petals, with long thread-like filaments, anthers large lightly attached. Ovary 1- or 2-celled, style simple, stigma hairy.

Flowers perfect, ... Plantago I.
Flowers monœcious, ... Littorella II.

I.—*PLANTAGO.*

Leaves not twice as long as broad, 480
Leaves much longer than broad, 481

480 Spike slender longer than the scape, . . . P. major.
480 Spike cylindrical shorter than the scape, . . P. media.
481 Leaves lanceolate, scape furrowed, ... P. lanceolata.
481 Leaves linear, scape rounded, 482

482 Leaves pinnatifid, ... P. coronopus.
482 Leaves entire, ... P. maritima.

PLANTA'GO MA'JOR (112). Greater Plantain. 6—8. Leaves 2—5
(1163) in. long broadly ovate on long grooved stalks, scape short not furrowed, spike very long, sepals with a prominent rib. *Pastures.*

PLANTA'GO ME'DIA (81). Hoary Plantain. 6—10. Leaves elliptic-
(1164) oblong, scape long not furrowed, spike short, sepals not ribbed. *Waste places.*

PLANTA'GO LANCEOLA'TA (112). Ribwort Plantain. 6—7.
(1166) Leaves lanceolate 5-ribbed, scape long deeply furrowed, spike globular. *Pastures.*

PLANTA'GO MARIT'IMA (78). Sea-side Plantain. 6—9. Leaves
(1167) linear fleshy, scape not furrowed, spike cylindrical long or short, sepals not keeled. *Salt marshes.*

PLANTA'GO CORONO'PUS (96). 6—8. Leaves narrow linear
(1168) 1-ribbed pinnatifid, scape not furrowed, spikes cylindrical, 1—2 in. *Sandy and gravelly places.*

II.—*LITTORELLA.*

LITTOREL'LA LACUS'TRIS (86). Shore-weed. 8. Leaves radical
(1170) tufted linear, fleshy 1½—3 in. long, flowers monœcious, corolla small urceolate. *Sandy margins of lakes.*

ORDER 59.—Chenopodiaceæ.

Calyx inferior. Sepals 3—5 free or united, corolla none. Stamens usually 5 opposite the sepals perigynous or hypogynous. Ovary 1-celled. Stamens 2—4. Fruit membranous. Leaves alternate without stipules.

Flowers perfect, 483
Flowers imperfect monœcious, ... Atriplex I.
483 Stem leafless jointed, ... Salicornia II.
483 Stem not jointed, 484
484 Disk fleshy, ... Beta IV.
484 Disk none, ... Chenopodium III.

I.—*ATRIPLEX.*

Herbs or shrubs mealy or scaly, flowers monœcious or dicœcious, sepals and stamens of staminate flowers 3—5, sepals and styles of pistillate flowers 2.

Segments of perianth in pistillate flowers united, . A. portulacoides.
Segments of perianth in pistillate flowers separate, 485
485 Bracts sessile, ... A. laciniata.
485 Bracts petiolate, ... A. patula.

A'triplex portulacoi'des (35). Sea-purslane. 8—10. A low much (1198) branched shrub white and mealy, leaves oblong entire, flowers in short interrupted spikes forming a terminal panicle, fruiting perianth sessile triangular thick. [L.

A'triplex lacin'iata (39). Frosted Orache. 7—10. Silvery white, stem (1197) angled 4—10 in., leaves triangular coarsely toothed, pistillate flowers axillary, staminate flowers in short spikes forming terminal panicles, fruiting sepals triangular nearly distinct. [L.

A'TRIPLEX PAT'ULA. Orache. 7—9. Stem 1—3 ft. high erect, (1193- branches spreading, lower leaves deltoid or hastate, upper leaves 1196) lanceolate, flowers small in slender interrupted spikes. *Waste places.*

II.—*SALICORNIA.*

SALICOR'NIA HERBA'CEA (64). Glass-wort. 8—9. Stem 6—18 in. (1200) erect cylindrical jointed succulent, branches opposite, flowers perfect very minute green 3 together on each side of each node, perianth 3—4 lobed, stamens and styles 2. *Salt marshes (often mistaken for samphire).*

III.—*CHENOPODIUM.*

Calyx 3- 4- or 5-partite persistent not growing together after flowering, stamens 2—5, stigmas 2, flowers perfect small in axillary clusters or spikes.

Leaves broadly triangular dark green, . . C. Bonus Henricus.
Leaves more or less ovate greyish green, 486
486 Leaves all entire, ... C. polyspermum.
486 Leaves some toothed, 487
487 Leaves ovate mealy beneath, ... C. album.
487 Lower leaves triangular green, 488
488 Axillary spikes single, 489
488 Axillary spikes forked, ... C. murale.
489 Calyx always 5-cleft, ... C. urbicum.
489 Calyx of lateral flowers 2—4 cleft, ... C. rubrum.

Chenopo'dium mura'le (40). 8—9. Nearly glabrous, stem 6—18 in., leaves (1184) deltoid-ovate bright green 1—3 in. broad serrate, spikes short densely panicled. [L.

Chenopo'dium ur'bicum (38). 9—10. Green but slightly mealy, stem (1186) ½—3 ft., leaves triangular 1—3 in. coarsely toothed, flowers numerous in crowded axillary spikes, erect and hardly branched. [L.

Chenopo'dium polysper'mum (48). 8—10. Glabrous, leaves ovate ½—1½ (1179) in. entire, flowers in short axillary spikes, stems 6—18 in. many usually procumbent. [Tb. F.

CHENOPO'DIUM AL'BUM (109). White Goose-foot. 7—9. Leaves (1181) oblong irregularly toothed mealy beneath, upper leaves lanceolate entire, spikes leafy simple or branched, clusters distant. *Waste places.*

CHENOPO'DIUM RU'BRUM (64). Red Goose-foot. 8—9. Leaves (1187-8) triangular irregularly toothed glabrous, spikes leafy panicled. *Waste places.*

CHENOPO'DIUM BO'NUS HENRI'CUS (97). Good King Henry. (1190) 6—8. Leaves triangular hastate acute, flowers in terminal leafless compound spikes. *Waste places.*

IV.—*BETA.*

Be'ta marit'ima (35). Wild Beet. 6—10. Root fleshy, stems many 1—2 (1191) ft., leaves fleshy, lower leaves broad, cauline leaves small lanceolate, flowers perfect in long loose terminal spikes, ovary sunk in the fleshy base (disk) of the perianth. [L.

ORDER 60.—Polygonaceæ.

Calyx inferior of 3—6 sepals. Stamens 5—8 perigynous opposite the sepals. Pistil syncarpous, styles 1—3, ovule solitary erect. Fruit a hard triangular nut. Leaves alternate, the stipules uniting round the stem forming a membranaceous *ochrea*.

Sepals 5, equal, ... Polygonum I.
Sepals 6, 3 large and 3 small, ... Rumex II.

I.—*POLYGONUM.*

Flowers purple in dense spikes with ochreate bracts, sepals 5, stamens 5—8, anthers lightly attached, ovary compressed or triangular.

Stem erect or climbing, 490
Stem procumbent, 492

490 Stem climbing, flowers racemose, 491
490 Stem erect, flowers in spikes, 493

491 Fruiting perianth winged, ... P. dumetorum.
491 Fruiting perianth without wings, ... P. convolvulus.

492 Flowers axillary, ... P. aviculare.
492 Flowers in spikes, plant creeping or floating, P. amphibium.

493 Stem simple, spike terminal, 494
493 Stem branched, flowers racemed or panicled, 495

494 Leaves ovate, petiole winged, ... P. Bistorta
494 Leaves linear-lanceolate, petiole not winged, P. viviparum.

495 Spike dense, not leafy at the base, 496
495 Spike lax, leafy at the base, ... P. Hydropiper.

496 Leaves ovato-lanceolate, spotted, lower stipules not fringed, ... P. lapathifolium.
496 Leaves lanceolate often spotted, stipules fringed, ... P. Persicaria.

POLYG'ONUM BISTOR'TA (70). Bistort Snake-root. 6—9. Stem (1217) simple erect 1—1½ ft. high, leaves oblong-ovate obtuse waved, flowers pink in a dense cylindric terminal spike. *Moist meadows.*

Polyg'onum vivip'arum (28). Alpine Bistort. 6—7. Stem simple erect (1218) 4—8 in. high, leaves linear-lanceolate, spike slender few-flowered. [G. (*Feizor, Helwith Bridge, Horton.*)

POLYG'ONUM AMPHIB'IUM (105). Amphibious Bistort. 7—8. (1216) Root-stock creeping, stem erect (or floating) nearly simple, leaves lanceolate smooth when aquatic, rough with very short adpressed hairs when terrestrial, spike short dense not leafy at the base. *Waste places, marshes, and ponds.*

POLYG'ONUM LAPATHIFO'LIUM (97). Pale-flowered Persicaria.
(1214) 7—8. Stem 1—4 ft. high much branched, nodes stout and swollen, leaves ovate acuminate, flowers greenish-white or pink in somewhat cylindric spikes. *Waste places.*

POLYG'ONUM PERSICA'RIA (112). Spotted Persicaria. 7—10.
(1213) Stem 1—2 ft. high branched nodes swollen, leaves lanceolate almost sessile usually spotted, stipules loose fringed, flowers pink in numerous cylindric axillary and terminal spikes. *Waste places.*

POLYG'ONUM HYDROP'IPER (104). Biting Persicaria. 8—9.
(1210) Stem 1—3 ft. high much branched creeping and rooting at the base, leaves lanceolate waved, flowers pink in lax slender curved spikes. Very acrid. *Watery places.*

Polyg'onum dumeto'rum (11). 7—8. Stem climbing, leaves cordato-
(1206) sagittate, 3 outer sepals with broad membranous wings, fruit smooth highly polished, flowers green in slender racemes. [Tb.

POLYG'ONUM AVICULA'RE (110). Knotgrass. 7—9. Stem pro-
(1207) cumbent, leaves oblong, stipules silvery fringed, flowers small numerous in axillary clusters. *Waste places.*

POLYG'ONUM CONVOL'VULUS (107). Black Bindweed. 7—9.
(1205) Stem climbing, leaves cordato-sagittate, flowers greenish in slender axillary and terminal racemes, fruit dull granulate.

II.—*RUMEX.*

Leaves alternate, flowers in panicled or racemed whorls, sepals 6 the inner ones larger, stamens 6, anthers fixedly attached to filaments, styles 3, fruit a triangular nut covered by the enlarged perianth.

Flowers perfect, leaves not acid, 497
Flowers dicœcious, leaves acid, 498

497 Inner sepals deeply toothed, 499
497 Inner sepals entire, 500

498 Outer sepals reflexed, plant 1—2 ft. high, . . . R. Acetosa.
498 Outer sepals ascending, plant under 1 ft. high, . R. Acetosella.

499 Lower leaves cordato-ovate obtuse, . . R. obtusifolius.
499 Lower leaves fiddle-shaped, ... R. pulcher.

500 Inner sepals cordate, 501
500 Inner sepals ovate, 502

501 Some of inner sepals tubercled, . . . R. crispus.
501 Inner sepals not tubercled, ... R. aquaticus.

502 Stem 3—5 ft. high, ... R. Hydrolapathum.
502 Stem under 3 ft., 503

503 All 3 sepals tubercled, ... R. Conglomeratus.
503 Only 1 sepal tubercled, ... R. Sanguineus.

RU'MEX OBTUSIFO'LIUS (109). Broad-leaved Dock. 7—9. Stem
(1226) 2—3 ft. high stout, leaves oblong ovate cordate obtuse, inner sepals triangular obtuse strongly toothed at the base the upper one tubercled. *Waste places.*

Ru'mex Pulcher (42). Fiddle Dock. 6—10. Stem 1—2 ft. high, branches
(1225) slender, lower leaves fiddle-shaped, upper leaves lanceolate acute, inner sepals oblong deeply toothed. [F. W.

RU'MEX CRIS'PUS (109). Curled Dock. 6—8. Stem 1—3 ft. high
(1229) branched, leaves lanceolate very wavy, inner sepals broadly ovate entire the upper ones with a broad tubercle. *Waste places.*

RU'MEX CONGLOM'ERATUS (92). Sharp Dock. 7—8. Leaves
(1221) oblong lanceolate not contracted above the base, inner sepals linear oblong, rounded at the base entire all tubercled. *Wet meadows and waste places.*

Ru'mex aquat'icus (37). Grainless Dock. 7—8. Leaves as in R. crispus
(1230) but broader, inner sepals cordate waved without tubercles. [G. (*Helwith Moss.*)

RU'MEX ACETO'SA (112). Sorrel. 5—7. Stem 1—2 ft. high slender,
(1233) leaves sagittate, flowers dicœcious or sometimes moncœcious, outer sepals reflexed. *Meadows.*

RU'MEX SANGUIN'EUS (87). Red-veined Dock. 7—8. Stem erect
(1222) 1—2 ft. slender, leaves oblong lanceolate, panicle leafy at the base with stiff slender spreading branches, inner fruiting sepals obtuse, upper one with a large tubercle. *Roadsides and hedges.*

RU'MEX HYDROLAP'ATHUM (68). Water Dock. 7—8. Stem
(1231) 3—5 ft. high, leaves 1—2 ft. broadly lanceolate, inner fruiting sepals entire all three tubercled. *Ditches and river-sides.*

RU'MEX ACETOSEL'LA (112). Sheep's Sorrel. 3—7. Stems
(1235) numerous 3—12 in. high, leaves hastate, flowers dicœcious, outer sepals ascending. *Dry pastures.*

ORDER 61.—Thymelaceæ.

Flowers perfect. Calyx tubular inferior 4—5-lobed. Stamens 2, 4, 8, or 10 perigynous included in the calyx-tube. Pistil syncarpous. Style 1. Fruit a drupe or berry. Shrubs with entire exstipulate leaves alternate or opposite.

I.—*DAPHNE.*

Leaves usually alternate, calyx 4-lobed lobes spreading, stamens 8, flowers odorous.

DAPH'NE LAURE'OLA (51). Spurge Laurel. 2—4. Leaves ever-
(1240) green, flowers greenish in bunches in the axils of the leaves, fruit black. *Copses and woods.*

Daph'ne Meze'reum (9). Mezereon. 3—4. Leaves deciduous, flowers
(1239) pinkish appearing in clusters before the leaves, fruit red.
[G. (*Feizor*), M. W.

ORDER 62.—Loranthaceæ.

Evergreen parasitic shrubs, leaves opposite coriaceous exstipulate, sepals thick 4, 6, or 8 superior, corolla 0, stamens equal number to the sepals and adnate to them, ovary 1-celled, fruit a 1-seeded berry.

Vis'cum al'bum (40). Mistletoe. 3—5. Yellowish-green glabrous, branches
(1242) dichotomous, leaves obovate-lanceolate entire, flowers small green dioecious sessile in the forks of the branches, sepals 4 triangular, berry white ½ in. diam. [F. Rg. T. W. Tb.

ORDER 63.—Aristolochiaceæ.

Flowers perfect, regular or irregular, calyx superior tubular-campanulate or trumpet-shaped entire 3-lobed or very irregular, stamens 6 or 12 epigynous, ovary 4—6-celled.

As'arum Europæ'um (6). Asarabacca. 5. Leaves radical evergreen
(1237) reniform, flower solitary dull purple, stamens 12, perianth 3-lobed campanulate. [M. G. (*Feizor.*)

ORDER 64.—Empetraceæ.

Flowers usually dioecious regular, perianth of 6 scales. Stamens 3—4 alternate with the petals hypogynous. Ovary globose. Fruit a fleshy drupe. Heath-like shrubs with alternate exstipulate leaves with revolute margins.

EMPE'TRUM NI'GRUM (71). Crowberry. 4—6. Stem wiry trailing,
(1315) leaves evergreen linear-oblong with margins rolled back so as nearly to meet over the midrib, flowers minute purple sessile, filaments very long, anthers red, berries black or purple. *Heaths and rocks.*

ORDER 65.—Euphorbiaceæ.

Stamens and pistil in separate flowers. Flowers minute. Perianth 3- or 4-lobed sometimes wanting. Stamens one or more. Ovary superior usually 3-celled with as many styles and stigmas. Herbs with entire leaves and usually milky juice.

Herbs, 504
Shrubs, ... Buxus III.
504 Juice milky, ovary 3-lobed, ... Euphorbia I.
504 Juice not milky, ovary 2-lobed, . . . Mercurialis II.

I.—*EUPHORBIA.*

Inflorescence of many staminate and one pistillate flower in a 4—5-lobed involucre, lobes alternating with thick reniform orbicular or crescent-shaped glands, stamen 1, ovary 3-lobed, styles 3, stigmas 3 bifid.

Leaves with stipules, ... E. Peplis.
Leaves without stipules, 505
505 Leaves ovate or obovate, 506
505 Leaves linear lanceolate, ... E. exigua.
506 Bracts connate at the base, ... E. amygdaloides.
506 Bracts free at the base, 507
507 Leaves serrate 1—2 in., ... E. Helioscopia.
507 Leaves entire ¼—1 in., 508
508 Capsule with ribs, ... E. Peplus.
508 Capsule with warts, ... E. platyphyllos.

EUPHOR'BIA AMYGDALOI'DES (51). Wood-Spurge. 3—5.
(1252) Stems erect 1 ft. glabrous or slightly hairy, leaves alternate obovate lanceolate entire, umbels 5—10-rayed, bracts yellow connate in pairs together orbicular, glands crescent-shaped. *Woods, copses, etc.*

Euphor'bia platyphyl'los (28). Broad-Spurge. 6—10. Stem erect stout
(1246) ½—2 ft. glabrous or slightly downy, leaves alternate oblong slightly serrate, umbel usually 5-rayed, bracts cordate, glands orbicular. [F.W.

Euphor'bia Pep'lis (9). Purple Spurge. 7—9. Stem procumbent purplish,
(1244) leaves opposite stipulate cordato-oblong obtuse, glands small oblong. [G.

EUPHOR'BIA EXIG'UA (81). Dwarf Spurge. 7—11. Stem erect
(1258) 2—6 in. much branched, leaves alternate exstipulate linear-lanceolate, glands crescent-shaped. *Fields, etc.*

EUPHOR'BIA HELIOSCO'PIA (106). Sun Spurge. 6—10. Stem
(1245) 6—18 in. erect simple or trifid at the base, leaves alternate exstipulate obovate serrate, umbel 5-rayed, glands orbicular. *Waste places.*

EUPHOR'BIA PEP'LUS (98). Petty Spurge. 7—11. Stem 6—10
(1257) in. simple or trifid at the base, leaves alternate obovate entire exstipulate, umbel 3-rayed, glands crescent-shaped with long points. *Waste places.*

II.—*MERCURIALIS.*

MERCURIA'LIS PEREN'NIS (105). Dog's Mercury. 3—4. Stem
(1261) 6—18 in. erect with opposite petiolate ovate serrate stipulate leaves, flowers dicœcious minute, staminate flowers in interrupted axillary spikes, sepals 3, stamens 8—20, pistillate flowers in clusters hidden among the leaves, ovary 2-celled, styles long recurved, fruit dicoccous hispid. *Shady places.*

III.—*BUXUS.*

BUX'US SEMPERVI'RENS. Box. 4—5. An evergreen shrub,
(1260) leaves alternate oblong exstipulate, flowers monœcious small sessile in axillary clusters, perianth usually 4-cleft, stamens 4, styles 3, capsule ovoid horned 3-celled, each cell with two black seeds. *Chalk hills and in shrubberies.*

ORDER 66.—Urticaceæ.

Monœcious or dicœcious, flowers rarely perfect. Calyx of staminate flowers of 4—5 sepals. Stamens 4—5 opposite the sepals. Calyx of pistillate flowers tubular or 3—5-cleft or of 1 membranaceous sepal. Ovary 1-seeded. Fruit indehiscent dry.

Stem twining, ... Humulus I.

Stem erect, 509

509 Leaves opposite with stinging hairs, . . . Urtica II.

509 Leaves alternate with simple hairs, . . Parietaria III.

I.—*HUMULUS.*

HU'MULUS LU'PULUS (82). Hop. 7—9. Stem long climbing
(1265) rough almost prickly, leaves opposite cordate petiolate, upper leaves ovate, lower leaves 3—5-lobed rough, flowers dicœcious greenish yellow minute, staminate flowers in lax panicles, pistillate flowers in catkins consisting of the large concave bract-like sepals, at the base of each of which are 2 styles and 1 ovary. *Hedges.*

II.—*URTICA.*

Flowers monœcious or dicœcious, staminate flowers with a 4-partite calyx and a sessile brush-like stigma.

URTI'CA U'RENS (107). Small Nettle. 6—9. Stem 1—2 ft. high,
(1268) leaves 1—2 in. elliptical serrate, staminate and pistillate flowers in the same panicle *Waste places.*

URTI'CA DIOI'CA (112). Great Nettle. 6—9. Stem 2—4 ft. high,
(1266) leaves 2—4 in. ovato-cordate serrate, staminate panicles lax, pistillate dense. *Waste places.*

III.—*PARIETARIA.*

PARIETA'RIA OFFICINA'LIS (91). Pellitory of the wall. 6—8.
(1269) Stems tufted prostrate or erect 1—2 ft. reddish brittle, branches slender leafy, leaves ovato-lanceolate 3-nerved, flowers greenish in axillary clusters with a 3—6-lobed involucre mostly perfect, calyx 4-partite, stamens 4, fruit enclosed in the enlarged calyx. *Old walls.*

ORDER 67.—Ulmaceæ.

Trees with rough alternate leaves and usually perfect flowers not in catkins. Calyx campanulate 4—5-cleft persistent. Stamens 4—5 perigynous, opposite the lobes of the perianth. Ovary free. Styles and stigmas 2. Fruit a winged *samara.*

UL'MUS MONTA'NA (93). Wych-Elm. 4—5. A tree 80—100 ft.
(1263) high, seed in the centre of the oblong samara, leaves ovate-oblong doubly and trebly serrate unequally rounded at the base. *Woods.*

UL'MUS CAMPES'TRIS. Common Elm. 4—5. A tree often 120
(1264) ft. high, seed above the middle of the obovate samara, leaves as in U. montana but smaller and narrower at the base. *Woods.*

ORDER 68.—Cupuliferæ.

Trees or shrubs with alternate stipulate leaves. Flowers monœcious, staminate flowers in catkins, sepals 5 or more or none, stamens 5—20. Pistillate flowers sessile in an involucre of free or united bracts, calyx 6-toothed superior, ovary 2—3-celled. Fruit indehiscent enclosed in a bony or leathery case formed of the bracts.

Staminate flowers in a long slender catkin, 510

Staminate flowers in a globose catkin, ... Fagus I.

510 Stigmas 3, ... Quercus II.

510 Stigmas 2, 511

511 Fertile catkin minute of few brown scales, . . . Corylus III.

511 Fertile catkin large of many leafy scales, . . . Carpinus IV.

CASTANEA VULGARIS—the Spanish Chestnut, is frequent in parks.

I.—*FAGUS.*

FA'GUS SYLVAT'ICA (64). Beech. 4—5. Leaves ovato-oblong
(1279) somewhat serrate thin and shining silky when young, staminate flowers in dense globose pendulous catkins, pistillate flowers 1—3 enclosed in a spiny involucre of 4 bracts, stigmas 3, fruit a smooth triangular nut. *Woods.*

II.—*QUERCUS.*

QUER'CUS RO'BUR (105). Oak. 4—5. Leaves obovate-oblong with
(1277) a sinuate margin sessile or petiolate, staminate flowers in lax pendulous catkins, pistillate flowers solitary, ovary 3-celled, stigmas 3, fruit a 1-seeded acorn seated in the cupule of imbricated bracts. *Woods.*

III.—*CORYLUS.*

CORY'LUS AVELLA'NA. Hazel. 3—4. Leaves orbicular cordate
(1276) acute doubly serrate, staminate flowers in cylindrical catkins with 3-lobed bracts, pistillate flowers many enclosed in a small sessile scaly bud, stigmas 2, fruit a woody nut enclosed in a lobed and laciniate involucre. *Woods.*

IV.—*CARPINUS.*

Carpi'nus Bet'ulus (35). Hornbeam. 5—6. Leaves elliptical ovate doubly
(1275) serrate hairy beneath, staminate flowers in pendulous catkins with ovato-lanceolate bracts, pistillate flowers in lax cones, fruit woody enclosed in the leafy lobed bract. [G. M. W. Tb. F.

ORDER 69.—Betulaceæ.

Flowers achlamydeous monœcious in short cylindrical catkins. Stamens 4—12 distinct. Ovary superior 2-celled. Style 1 or none. Stigmas 2. Fruit indehiscent membranaceous not enclosed by bracts. Leaves alternate with deciduous stipules.

Stamens 4, fruit not winged, ... Alnus I.
Stamens 8—12, fruit winged, ... Betula II.

I.—*ALNUS.*

AL'NUS GLUTINO'SA (109). Alder. 3—4. Scales of the fertile
(1274) catkin woody persistent, leaves obovate cuneate green on both sides sinuate serrate. A small tree with black bark. *Wet places.*

II.—*BETULA.*

BET'ULA AL'BA (107). Birch. 4—5. Scales of the fertile catkins
(1271) deciduous, leaves ovate somewhat triangular doubly serrate, fruit
(1272) orbicular broadly winged. A tree 40—50 ft. with silvery white bark. *Woods.*

ORDER 70.—Salicaceæ.

Flowers diœcious seldom monœcious, in catkins which appear before the leaves. Stamens 1 or more. Ovary 1-celled. Styles 2 short. Stigmas 2. Each flower in the axil of a small scale-like bract. Leaves alternate stipulate.

Catkins drooping, ... Populus I.
Catkins erect, ... Salix II.

I.—*POPULUS.*

Catkins drooping, scales crenate lobed or cut, stamens 4—30 from the oblique cup-like disk, stigmas slender 2—4-cleft.

Young shoots pubescent, 512
Young shoots glabrous, ... P. nigra.
512 Leaves white and cottony beneath, . . . P. alba.
512 Leaves glabrous or silky beneath, ... P. tremula.

POP'ULUS NI'GRA. Black Poplar. 3—4. Leaves triangular crenate (1314) finely serrate, petiole slender compressed. *River banks.*

POP'ULUS AL'BA (60). White Poplar. 3—4. Leaves broadly ovato-(1311) cordate lobed and toothed white beneath. *Moist woods.*

POP'ULUS TREM'ULA (100). Aspen. 3—4. Leaves nearly round (1313) acute serrate glabrous beneath, petiole very long and slender compressed. *Moist woods.*

II.—*SALIX.*

Catkins erect, scales entire, stamens 2—5, fruit a 1-celled follicle, seeds hairy.

Filaments united, ... S. purpurea.
Filaments free, 513
513 Filaments hairy, 514
513 Filaments glabrous, 515
514 Stamens 3 or more, 516
514 Stamens 2, 517
515 Capsule with a slender pedicel, 518
515 Capsule sessile or with a very short pedicel, 519
516 Stamens 3, capsule with a pedicel, ... S. triandra.
516 Stamens usually 5, capsule sessile, ... S. pentandra.

517 Leaves glabrous, twigs fragile at the forks, . . S. fragilis.
517 Leaves silky, on both sides, twigs not fragile, . S. alba.
518 Style short or none, 520
518 Style distinct, 521
519 A small tree, style slender, ... S. viminalis.
519 Plant only a few inches high, style short, . S. herbacea.
520 Leaves much wrinkled, ... S. aurita.
520 Leaves not wrinkled, 522
521 Twigs bright chestnut, ... S. phylicifolia.
521 Twigs dull coloured, leaves black when dry, . S. nigricans.
522 Leaves 2—4 inches, ... S. Caprea.
522 Leaves under 2 inches, ... S. repens.

SA'LIX TRIAN'DRA (63). Almond-leaved or French Willow. 4—5.
(1284) Leaves oblong-lanceolate glabrous dark green above glaucous below, 2—4 in. with large ½-cordate stipules, catkins on short peduncles slender 1—2 in. appearing with the leaves, stamens 3, stigmas nearly sessile. A tree 20 ft. high. *River banks.*

SA'LIX PENTAN'DRA (54). Sweet Bay Willow. 5—6. Leaves elliptic-
(1280) lanceolate shining pale beneath 1—4 in. fragrant, catkins stalked 1—2 in., stamens 5 or more. A shrub or tree. *River banks and wet places.*

SA'LIX FRAG'ILIS (84). Crack Willow or Withy. 4—5. Leaves
(1281) lanceolate acuminate serrate glabrous pale beneath 3—6 in., catkins spreading stout on short leafy branches 1—2 in., stamens 2, twigs fragile at the joints. A large tree. *Marshy ground.*

SA'LIX AL'BA (86). White Willow. 5. Leaves lanceolate acuminate
(1282) serrate silky on both surfaces 2—4 in., twigs not fragile at the joints, catkins appearing with the leaves slender lax erect on short leafy branches, stamens 2 hairy. A large tree. *Marshy ground.*

SA'LIX CAPRE'A (89). Goat-Willow, Sallow. 4—5. Leaves ovato-
(1297) elliptical acuminate wrinkled crenate dark green above woolly beneath
(1295) 2—4 in., catkins short and thick sessile silky appearing before the leaves, scales with black tips, stamens 2. (Twigs with catkins gathered at Easter for palms.) A small tree. *Woods.*

SA'LIX AURI'TA (99). Round-eared Sallow. 4—5. Leaves obovato-
(1296) oblong crenate much wrinkled pubescent on the lower surface under 2 in., catkins short sessile, stipules large reniform. A small bush 2—4 ft. high. *Moist copses.*

SA'LIX RE'PENS (92). Dwarf silky Willow. 4—5. Leaves ½—1½ in.
(1302) oblong-lanceolate with recurved margins shining above silky beneath, catkins short cylindrical oblong sessile appearing before the leaves, stamens 2. A small straggling bush 1—3 ft. *Heaths and commons.*

Sa'lix ni'gricans (19). Dark-leaved Sallow. 4—5. Leaves ovato-oblong
(1300) turning black on drying, catkins ovato-cylindrical ½—1 in., stamens 2, style long. A procumbent shrub 6—10 ft. [G. (*Ribble-side*).

Sa'lix phylicifo'lia (24). Tea-leaved Willow. 4—5. Leaves ovato-oblong
(1299) glabrous shining above glaucous beneath, branches reddish shining, catkins sessile, stamens 2, style distinct. A handsome bush. [G. (*Ribble-side, Langcliffe.*)

SA'LIX VIMINA'LIS (80). Osier. 4—6. Leaves linear-lanceolate
(1289) acuminate undulate silky beneath margin revolute, catkins sessile golden-yellow opening long before the leaves, stamens 2, style slender. A small tree 30 ft. with long straight branches. *Wet places.*

SA'LIX PURPU'REA (70). Purple Osier. 4—5. Leaves thin and
(1285) very smooth linear-lanceolate serrate 3—6 in., catkins 1—1½ in. appearing before the leaves, scales tipped with purple, stamens 2, filaments united hairy at the base. A shrub 6—10 ft. high with tough slender twigs and purple bark. *River banks.*

Sa'lix herba'cea (25). Least-Willow. 6—7. Leaves oblong or orbicular
(1309) obtuse shining ¼—½ in., catkins 1 in. flowering after the leaves on 2-leaved peduncles. A very small shrub with underground stem sending up short flowering twigs. [G. (*Ingleboro', Penyghent, Whernside.*)

ORDER 71.—Myricaceæ.

Dicœcious, flowers in axillary catkins, achlamydeous. Staminate flowers with 6—8 stamens sometimes monadelphous. Pistillate flowers with a sessile 1-celled ovary and 2 styles. Fruit a drupe covered with waxy secretion. Leafy shrubs with alternate entire leaves covered by a waxy pubescence.

MYR'ICA GA'LE (79). Sweet Gale, Bog Myrtle. 6—7. Stem 2—3 ft.
(1270) high shrubby, leaves obovate-lanceolate serrate resinous and fragrant, catkins reddish-brown sessile erect, fruit minute. *Bogs and moors.*

ORDER 72.—Coniferæ.

Monœcious or dicœcious, achlamydeous. Staminate flowers of 1 or more anthers seated on the scales of the deciduous catkins. Pistillate flowers of 1 or more sessile naked ovules concealed by the scales of the cones. Style 0. Stigma 0. Trees abounding in resin with alternate entire linear or subulate leaves solitary or fascicled.

Fruit a cone with several seeds, 523
Fruit a berry with one seed, ... Taxus I.
523 Cone dry, many-seeded, ... Pinus II.
523 Cone fleshy, few-seeded, ... Juniperus III.

I.—*TAXUS.*

Tax'us bacca'ta 48). Common Yew. 3—4. Leaves linear rigid in two
(1320) rows dark green, staminate catkins axillary ¼ in. yellow, pistillate catkins minute with green scales, fruit bright red of one naked seed enclosed in an open fleshy mucilaginous cup. [G. Tb.

II.—*PINUS.*

Pi'nus sylvestris (12). Scotch Fir. 5—6. Leaves acicular rigid in pairs,
(1321) staminate catkin with membranous scales, each scale bearing 2 anthers, pistillate cone with woody scales each scale with 2 naked ovules at the base. *Mountains.* [G. Tb. L. Wl. F.

III.—*JUNIPERUS.*

JUNIPE'RUS COMMU'NIS (73). Juniper. 5—6. Leaves linear
(1318) mucronate three in a whorl, staminate catkin globose, pistillate cone small globose of 5—6 scales in a whorl which become fleshy in fruit. *Hillsides.*

Other Coniferæ commonly found in cultivation are *Pinus Pinaster* (the Cluster Pine), *Abies Excelsa* (the Spruce Fir), *Abies Larix* (the Larch), *Abies Cedrus* (the Cedar of Lebanon), *Cupressus Sempervirens* (the Cypress), *Pinus Austriaca*, and *Cedrus Deodara.*

ORDER 73.—Orchidaceæ.

Flowers solitary or in spikes or racemes. Perianth superior irregular of 6 coloured segments—3 outer sepals and 3 inner petals of which the lower one (*the lip*) is usually larger and often spurred. Stamen 1, the anther adherent to the pistil consisting of 2 lobes separating early, but joined below in a little knob (the rostellum) projecting over the mouth of the spur above the stigmatic surface, there being no style except the rostellum. Pollen in 2 or more pear-shaped masses, each terminating below in a little stalk with a sticky gland, the glands exposed or concealed in pouches. Ovary usually long and twisted. Seeds very many and very small.

Leafless plants, ... Neottia I.
Leafy plants, 524
524 Lip spurred, 525
524 Lip without a spur, 526
525 Pollen glands in a pouch, ... Orchis II.
525 Pollen glands exposed, 527
526 Anthers 2, lip slipper-shaped, . . . Cypripedium III.
526 Anther 1, 528
527 Flowers white, ... Habenaria IV
527 Flowers rose-coloured, ... Gymnadenia V.

528 Lip much contracted in the middle, 529
528 Lip not contracted in the middle, 530
529 Ovary straight, flowers drooping, ... Epipactis VI.
529 Ovary twisted, flowers erect, ... Cephalanthera VII.
530 Sepals and petals forming a hood, 531
530 Sepals and petals spreading, 532
531 Lip 3-lobed, ... Herminium XI.
531 Lip 4-lobed, ... Aceras VIII.
532 Flowering stem leafy, 533
532 Flowering stem leafless, ... Spiranthes XII.
533 Lip linear, 2-lobed at the apex, ... Listera IX.
533 Lip more or less swollen, ... Ophrys X.

I.—*NEOTTIA.*

NEOTTIA NIDUS-AVIS (81). Bird's-Nest. 6—7. Stem 1 ft. leaf-
(1329) less with brown scales, flowers brown in a rather dense spike, lip linear with two terminal spreading lobes, root a mass of thick fibres. *Dark woods, especially beech.*

II.—*ORCHIS.*

Lip 3-lobed spurred, pollen-glands in one pouch, flowers spiked, leaves chiefly radical, root of tubers.

Pollen-glands united, ... O. pyramidalis.
Pollen-glands separate, 534
534 Tubers of root palmate, 535
534 Tubers of root 2 undivided, 536
535 Lip scarcely 3-lobed, sides reflexed, ... O. latifolia.
535 Lip deeply 3-lobed, sides flat, ... O. maculata.
536 Spike lax, 538
536 Spike dense, 537
537 Stem 4—5 in., ... O. ustulata.
537 Stem 1—1½ ft., ... O. militaris.
538 Lateral sepals reflexed upwards, . . . O. mascula.
538 Lateral sepals arching and forming a hood with the petals, ... O. Morio.

ORCHIS PYRAMIDALIS (63). Pyramidal Orchis. 7—8. Pollen-
(1346) glands united, lip 3-lobed lobes broad, spur very long, flowers rose-coloured in a dense pyramidal spike with a peculiar scarcely pleasant odour. *Pastures.*

Or'chis milita'ris (5). Military Orchis. 5—6. Stem 1—1½ ft., leaves
(1349) 3—5 in. oblong without spots, flowers pale purple or white in a dense oblong spike, lip 3-lobed lateral lobes narrow mid-lobe bifid with segments curved upwards, spotted with purple. [B.

Or'chis lati'folia (32). Marsh Orchis. 6—7. Pollen-glands separate,
(1355) tubers of the root palmate, lip scarcely 3-lobed margins recurved, sepals spreading, petals forming a hood, spur shorter than the ovary, flowers dull purple in a dense spike. [G. S.

OR'CHIS MACULA'TA (108). Spotted Orchis. 6—8. Pollen-glands
(1356) separate, tubers of the root palmate, lip deeply 3-lobed flat pale purple spotted, sepals spreading, spike oblong-pyramidal dense, leaves oblong lanceolate spotted. *Moist places.*

Or'chis ustula'ta (42). Dwarf Orchis. 5—6. Stem 3—8 in. high, pollen-
(1347) glands divided, tubers of the root undivided, lip 3-lobed, lobes linear white and spotted, mid-lobe half as long again as the lateral lobes more or less bifid, sepals dark purple forming a helmet including the petals. [G.

OR'CHIS MAS'CULA (100). Early purple Orchis. 4—6. Pollen-
(1352) glands separate, tubers of root undivided, lateral sepals acute reflexed upwards, lip 3-lobed as broad as long longer than the ovary, flowers purple in a lax spike, leaves spotted. *Pastures.*

OR'CHIS MO'RIO (63). Green-winged Meadow-Orchis. 5—6. Pollen-
(1351) glands separate, tubers of root undivided, lateral sepals obtuse hooded with green veins, lip 3-lobed spotted lateral lobes crenate, leaves small and narrow not spotted. *Meadows.*

III.—*CYPRIPEDIUM.*

Cypripe'dium Calce'olus (4). Lady's Slipper. 5. Sepals and petals
(1369) spreading brown, lip yellow large (1¾ inch) inflated without a spur, ovary straight, leaves oblong acuminate ribbed.
[G. (*Arncliffe, probably extinct.*)

IV.—*HABENARIA.*

Lip spurred, glands of pollen-masses exposed distant.

HABENAR'IA BIFO'LIA (73). Butterfly Orchis. 6—8. Leaves 2
(1367) ovate, flowers whitish with spreading sepals, spur twice as long as the
(1368) ovary, lip entire. *Wet meadows and heaths.*

HABENAR'IA VIR'IDIS (91). Frog Orchis. 6—8. Leaves several
(1366) narrow-oblong, flowers green with connivent sepals, spur very short, lip bifid. *Dry hilly pastures.*

Habenar'ia al'bida (45). 6—8. Leaves several small obtuse, flowers
(1365) fragrant small white with the lateral sepals connivent, spur very short, lip 3-lobed. [G. (*Giggleswick, Feizor*), S.

V.—*GYMNADENIA.*

GYMNADE'NIA CONOP'SEA (98). Fragrant Orchis. 6—8. Lip
(1363) spurred, glands of pollen-masses exposed contiguous, lateral sepals spreading, spur slender, lip 3-lobed, flowers rose-coloured or purple fragrant in a narrow spike, leaves lanceolate acute. *Dry pastures.*

VI.—*EPIPACTIS.*

Flowers drooping in racemes, ovary straight, pedicel twisted, lip without a spur much contracted in the middle, the upper lobes concave the lower with two tubercles at the base, anther sessile hinged on the top of the column.

EPIPAC'TIS LATIFO'LIA (85). Broad-leaved Helleborine. 7—8.
(1340-41-42-43) Leaves ovate ribbed, flowers green variously marked with purple and yellowish-white, bracts longer than the flowers, lower lobe of lip acute. *Woods.*

EPIPAC'TIS PALUS'TRIS (62). Marsh Helleborine. 7—8. Leaves
(1344) lanceolate, flowers few greenish with the lip white marked with red and purple, bracts shorter than the flowers, lower lobe of lip obtuse. *Marshy places.*

VII.—*CEPHALANTHERA.*

Flowers sessile erect in few-flowered spikes, ovary twisted, lip without a spur contracted in the middle without tubercles.

Cephalan'thera grandi'flora (40). White Helleborine. 5—6. Stem
(1339) 1—1½ ft., leaves broadly ovate or lanceolate, bracts longer than ovaries, flowers white ⅔ in. [M. L. Tb. Wl. B.

Cephalan'thera ensifo'lia (34). Narrow-leaved Helleborine. 5—8.
(1338) Flowers pure white erect in few-flowered spikes, ovary twisted glabrous longer than the minute bract, lip without a spur contracted in the middle, lower lobe not tubercled, anther hinged on the top of the column, leaves lanceolate. [G. (*Ingleton*), W.

VIII.—*ACERAS.*

Ac'eras anthropoph'ora (17). Green Man Orchis. 6—7. Sepals and
(1357) petals green forming a hood, lip elongate vertical ½ in. yellow edged with red with 2 terminal and 2 lateral linear lobes, spike lax narrow, leaves oblong lanceolate. [Wl.

IX.—*LISTERA.*

Root of fleshy fibres, leaves 2 opposite, sepals and petals spreading, lip deflexed bifid, spur 0.

LISTE'RA OVA'TA (102). Tway-blade. 5—7. Stem 1—2 ft. high
(1331) pubescent above with 2 ovate 3—8 in. strongly ribbed leaves half-way up the stem, flowers yellowish-green. *Moist pastures and woods.*

LISTE'RA CORDA'TA (54). Heart-leaved Tway-blade. 6—7. Stem
(1330) 4—8 in. glabrous, leaves ovato-cordate, flowers greenish-brown minute.
Mountain woods and moors.

X.—*OPHRYS.*

Sepals and petals spreading, petals much smaller than the sepals, lip convex velvety variously marked, spur 0, glands of pollen-masses in 2 separate pouches.

O'phrys apif'era (48). Bee-Orchis. 6—7. Sepals pink inside, lip broad,
(1358) convex 3-lobed brownish-purple, leaves short oblong. [G. (*Hellifield*) F.

O'phrys muscif'era (42). Fly-Orchis. 5—7. Sepals yellowish-green,
(1361) petals reddish-brown, lip longer than broad reddish-brown with a blue patch 3-lobed middle lobe bifid, leaves few linear oblong.
[F. G. (*Scar, Stackhouse.*)

O'phrys aranif'era (12). Spider-Orchis. 4—5. Sepals yellowish green
(1360) inside, petals oblong, lip dull brown, variously marked broad convex.
[B.

XI. *HERMINIUM.*

Hermin'ium Monor'chis (22). Musk-Orchis. 6—7. Stem 4—10 in.
(1362) slender, radical leaves 2 oblong acute, spike slender with numerous small greenish flowers smelling of musk, petals narrower and longer than the sepals, lip narrow 3-lobed, mid lobe entire narrow acuminate, spur 0. [M. R.

XII. *SPIRANTHES.*

Spiran'thes autumna'lis (57). Lady's-tresses. 8—9. Stem 4—8 in. slender,
(1332) distinct from the spreading tuft of 3—4 ovate radical leaves, flowers in a spirally twisted spike small white smelling of almonds, sepals and petals alike erect or spreading only at the tip, lip oblong concave at the base. *Dry pastures.*

ORDER 74.—Iridaceæ.

Perianth superior petaloid of 6 segments. Stamens 3, inserted on the sepals. Ovary 3-celled. Style 1. Stigmas 3 sometimes petaloid. Bracts spathe-like.

I'RIS PSEUD-AC'ORUS (112). Yellow-Flag. 5—8. Stem 2—3 ft.
(1371) high leafy, leaves 2—4 ft. long ½—1 in. broad, perianth regular 3—4 in. diameter bright yellow. *Ditches and river-banks.*

I'ris fœtidis'sima (46). Roast-beef plant. 5—7. Stem 1—2 ft. leafy,
(1370) leaves narrow, perianth regular outer segments usually purple, inner yellow. [F. T. W.

ORDER 75.—Amaryllidaceæ.

Perianth superior petaloid regular. Stamens 6, inserted on the base of the perianth tube, sometimes with a corona at the mouth of the tube. Ovary globose 3-celled. Style 1. Stigma 3-lobed.

Perianth with a corona, ... Narcissus I.
Corona none, 539
539 Flowers solitary, ... Galanthus II.
539 Flowers several together, ... Lencojum III.

I.—*NARCISSUS.*

NARCIS'SUS PSEUDO-NARCIS'SUS (76). Daffodil. 3—4.
(1380) Leaves linear nearly flat, flower solitary campanulate yellow, segments spreading, mouth surmounted by a circular crown. *Copses and moist woods.*

II.—*GALANTHUS.*

Galan'thus niva'lis. Snowdrop. 2—3. Leaves 2 linear keeled, flowers
(1385) solitary pendulous, sepals obovate spreading longer than the petals, petals white with a double green spot below the tip.
[G. (*Buck Ha' Brow.*)

III.—*LEUCOJUM.*

Leucoj'um æsti'vum. Snowflake. 5. Leaves numerous, scape 1—1½ ft.
(1386) with 2—6 pendulous white flowers within a terminal spathe, perianth segments equal [M. R. Wl.

ORDER 76.—Liliaceæ.

Perianth inferior petaloid of 3 sepals and 3 petals. Stamens 6 hypogynous or inserted in the perianth. Ovary 3-celled. Styles 1 or 3. Stigma simple or 3-lobed. Fruit a capsule or berry.

Root-stock creeping, 540
Root bulbous, 542
540 Stem branched, ... Ruscus I.
540 Stem simple, 541
541 Fruit a berry, 544
541 Fruit a capsule, ... Narthecium II.
542 Flowers in umbels or racemes, 543
542 Flowers solitary, ... Fritillaria VIII.
543 Flowers in racemes, 545
543 Flowers in umbels, 546

544 Scape leafless, ... Convallaria VI.
544 Stem leafy, ... Polygonatum VII.
545 Flowers blue, ... Hyacinthus V.
545 Flowers white, ... Ornithogalum IX.
546 Flowers yellow, ... Gagea IV.
546 Flowers white or pink, ... Allium III.

I.—*RUSCUS.*

Rus'cus aculea'tus (29). Butcher's Broom. 2—4. Stems 1—2 ft. erect
(1389) tufted branched angled, leaves minute bearing in their axils leaflike ovate branches on which the flowers are sessile, perianth 6-partite ⅛ in. diam. white, stamens 3, filaments united to form a tube, ovary 3-celled, flowers usually monœcious, fruit a red berry. [M. T. L. Nt. Wl.

II.—*NARTHECIUM.*

NARTHE'CIUM OSSIF'RAGUM (95). Bog-Asphodel. 6—8. Stem
(1422) 6—8 in., leaves rigid strongly ribbed acuminate, flowers ½ in. diameter golden yellow in racemes, perianth-segments nearly equal spreading, capsule triangular red narrow longer than the perianth. *Bogs and wet places.*

III.—*ALLIUM.*

Flowers in umbels with a 2-leaved membranous spathe, perianth of 6 spreading segments, stigma simple, capsule triangular, plants fœtid and pungent.

Stem leafy, 547
Leaves all radical, ... A. ursinum.
547 Leaves flat, ... A. Scorodoprasum.
547 Leaves fleshy, ... A. vineale.

Al'lium Scorodop'rasum (16). Sand Garlic. 5—7. Leaves flat keeled
(1398) 6—8 in. long ½ in. broad, umbels with 10—30 reddish-purple flowers. [G. (*Kilnsey Crag, Langcliffe.*)

Al'lium olera'ceum (47). Field Garlic. 7—8. Leaves very slender
(1401) sheathing the slender scape to about the middle grooved above ribbed beneath, umbel of about 10 brownish flowers on slender pedicels. [G. (*Feizor, Malham, Kilnsey, Langcliffe.*)

AL'LIUM VINEA'LE (76). Crow Garlic. 6—7. Leaves ⅓ ft.—
(1400) 2 ft. long fistular flattened or grooved above, umbel with about 12 greenish or pink flowers frequently bearing bulbs. *Waste dry places.*

AL'LIUM URSI'NUM (99). Broad-leaved Garlic or Ramsons. 4—6.
(1407) Leaves ovato-lanceolate sheathing the base of the triangular scape, umbel regular flat-topped with about 15 pure white flowers and 2 ovate spathes, perianth-segments lanceolate. *Woods.*

IV.—*GAGEA.*

Ga'gea lu'tea (41). Yellow Star of Bethlehem. 3—4. Leaf solitary (1419) radical linear ribbed, flowers yellow 4—8 in an umbel with 1—3 bracts, perianth-segments free spreading closed in the afternoon.
[G. (*Malham Cove.*)

V.—*HYACINTHUS.*

HYACIN'THUS NONSCRIP'TUS (109). Bluebell. 4—6. Leaves (1411) 10—18 in. linear channelled, flowers blue or purple 6—12 in a raceme drooping, bracts linear membranous, perianth campanulate, segments united at the base, capsule 3-angled globose. *Woods and banks.*

VI.—*CONVALLARIA.*

CONVALLA'RIA MAJA'LIS (56). Lily of the Valley. 5—6. Leaves (1395) 2—3 ovato-lanceolate radical, flowers white in a 6—12-flowered raceme drooping, perianth ⅓ in. diameter shortly campanulate almost globose, segments with free tips recurved, berry red globose. *Woods.*

VII.—*POLYGONATUM.*

Root stock creeping, stem leafy with many nodes, flowers pendulous greenish-white without bracts, perianth campanulate.

Polygona'tum multiflo'rum (32). Solomon's Seal. Stem 2—3 ft. round, (1392) leaves alternate oblong, peduncles 2—5-flowered, perianth ⅔ in. narrowest in the middle, filaments hairy. [G. M.

Polygona'tum officina'le (14). Angular Solomon's Seal. 5—6. Stem (1393) 6—12 in. angular, leaves alternate oblong perpendicular 1—3-flowered, perianth 1 in. tubular widest in the middle, filaments glabrous.
[G. (*Kelcowe Cave, Malham.*)

VIII. *FRITILLARIA.*

Fritilla'ria Melea'gris (20). Snake's Head. 5. Stem 10—18 in. with a (1417) single drooping flower, leaves linear, perianth campanulate, dull red or purple tesselated. [F. M. R. T.

IX. *ORNITHOGALUM.*

Leaves all radical linear, flowers white in racemes or corymbs, scape leafless, perianth spreading, of 6 separate segments, stamens 6, hypogynous, ovary and style 3-angled.

ORNITHO'GALUM UMBELLA'TUM. Star of Bethlehem. 5—6. (1413) Flowers 6—10 in a corymb white 1—1½ in. diameter. [R. L. Wl. F.

Ornitho'galum pyrena'icum (8). 6—7. Flowers in an erect raceme of (1414) small greenish-white flowers. [T.

Cultivated plants belonging to *Liliaceæ* are the Tulip, the White Lily (*Lilium candidum*), the Orange Lily (*L. bulbiferum*), the Turk's Cap (*L. Martagon*), the Tiger Lily (*L. tigrinum*), Asparagus, Crown Imperial (*Fritillaria imperialis*), the Onion (*Allium Cepa*), and the Dog's Tooth Violet (*Erythronium Dens-canis*).

ORDER 77.—Trilliaceæ.

Stem with 1 or 2 whorls of net-veined leaves. Sepals 3—5 lanceolate. Petals 3—5 filiform. Ovary superior. Fruit a berry.

PAR'IS QUADRIFO'LIA (72). Herb-Paris. 5—6. Leaves 3—8
(1424) (usually 4) ovato-oblong, sepals green acuminate, petals linear yellow, stamens 6—12, connective much produced, berry black. *Woods.*

ORDER 78.—Dioscoraceæ.

Stem twining leafy, leaves alternate net-veined. Flowers small monœcious in axillary racemes. Perianth superior. Stamens 6 inserted on the perianth-segments. Ovary 3-celled. Styles 3 short.

TA'MUS COMMU'NIS (69). Black Bryony. 5—6. Stem long twining,
(1388) leaves cordate acute, perianth $\frac{1}{8}$ in. diameter greenish-yellow. *Hedges.*

ORDER 79.—Melanthaceæ.

Ovary superior. Perianth petaloid tubular 6-partite. Styles 3. Fruit a 3-valved capsule. Root bulbous.

Col'chicum autumna'le (40). Meadow Saffron. 8—10. Leaves radical
(1421) lanceolate, flowers pale purple solitary sessile on the corm, perianth-tube long and slender, stamens inserted in the mouth of the perianth included, anthers $\frac{1}{2}$ in. yellow. [G. T.

ORDER 80.—Hydrocharidaceæ.

Aquatic herbs with aërial floating or submerged leaves opposite or whorled. Flowers usually dicœcious. Perianth 6-partite. Stamens 3 or 6 on the base of the perianth-segments. Ovary inferior 1- or many-celled. Stigmas 3—6.

Leaves floating, 548
Leaves erect, ... Stratiotes.
548 Leaves orbicular, ... Hydrocharis.
548 Leaves linear, ... Anacharis.

I.—*HYDROCHARIS.*

Hydro'charis Morsus-Ra'næ (47). Frog-bit. Plants floating, leaves orbicular
(1324) 1—1$\frac{1}{2}$ in. diameter, flowers erect $\frac{3}{4}$—1 in. diameter, sepals 3 narrow green, petals 3 obovate white, stamens 3—12, styles 6, stigmas bifid. [L.

II.—*ANACHARIS.*

ANA'CHARIS CANADEN'SIS. Canadian Pond-weed. 5—10. Dark green
(1323) floating much branched, leaves linear opposite or in whorls, staminate flowers unknown in this country, pistillate flowers sessile but with the perianth-tube elongated so that the flowers rest on the surface of the water, perianth ⅛ in. diam. greenish purple. *Ponds, ditches, and streams.*

III.—*STRATIOTES.*

Stratio'tes aloi'des (15). Water-soldier. 7—8. Leaves erect sword-like
(1325) 6—18 in. rigid spinous-serrate deep green, flower white 1½ in. diameter. [R.

ORDER 81.—Alismaceæ.

Aquatic herbs with erect or floating mostly radical netted-veined leaves. Perianth 6-partite. Stamens 6—9 hypogynous. Ovary superior. Styles short or none. Stigma terminal simple or feathery.

Leaves flat, 549	
Leaves linear, ...	Triglochin I.
Leaves triangular, ...	Butomus II.
549 Stamens 6, ...	Alisma III.
549 Stamens many, ...	Sagittaria IV.

I.—*TRIGLOCHIN.*

TRIG'LOCHIN PALUS'TRE (106). Arrow-Grass. 6—8. Leaves
(1476) erect filiform, flowers inconspicuous in racemes purplish, fruit clavate of 3 carpels. *Marshes and wet meadows.*

TRIG'LOCHIN MARIT'IMUM (76). Leaves flattened at the top,
(1477) flowers in dense racemes, fruit oblong of 6 carpels. *Salt marshes.*

II.—*BUTOMUS.*

BU'TOMUS UMBELLA'TUS (59). Flowering Rush. 6—7. Stem
(1475) 3—4 feet high, leaves triangular long and slender all radical, flowers rose-red 1 in. diameter in an umbel with membranous bracts, perianth-segments oblong spreading, stamens 9. *Ditches.*

III.—*ALISMA.*

Roots fibrous, leaves erect or floating, sepals 3, petals 3, stamens 6, carpels 6 or more 1-seeded indehiscent.

ALIS'MA PLANTA'GO (99). Water-Plantain. 6—8. Leaves erect
(1470) ovato-lanceolate or cordate all radical, scapes 1—3 ft. whorled, flowers ⅛ in. diameter pink in panicles, fruit compound obtuse. *Ditches.*

ALIS'MA RANUNCULOI'DES (84). Lesser Water-Plantain. 5—9.
(1471) Leaves erect linear lanceolate all radical, scape ½—1½ ft. whorled, flowers pink in umbels, fruit ribbed acute. *Bogs and ditches.*

IV.—*SAGITTARIA.*

SAGITTA'RIA SAGITTIFO'LIA (57). Arrowhead. 7—9. Flowers (1473) monœcious, stamens and carpels numerous, leaves hastate 2—8 in. erect, flowers ½ in. diameter white about three in a whorl. *Ditches.*

ORDER 82.—Naiadaceæ.

Aquatic plants rooting in the ground with parallel-veined leaves. Flowers inconspicuous, perfect or monœcious. Perianth usually present, of 2 or 4 segments. Stamens 1—4 hypogynous. Ovary superior, of 1—4 carpels. Style 1. Stigma simple. Fruit 1-celled 1-seeded indehiscent.

Stamens 4, ... Potamogeton I.
Stamen 1, ... Zannichellia II.

I.—*POTAMOGETON.*

Leaves submerged and transparent or floating and opaque alternate or opposite, flowers perfect in axillary or terminal spikes, perianth-segments 4, stamens 4, anthers nearly sessile.

Leaves all submerged, 550
Upper leaves floating, 551
550 Leaves opposite, ... P. densus.
550 Leaves alternate, 552
551 Submerged leaves sessile, 553
551 Submerged leaves petiolate, ... P. natans.
552 Leaves linear, 554
552 Leaves ovate or oblong, 557
553 Peduncles enlarged upwards, 555
553 Peduncles not enlarged upwards, ... P. rufescens.
554 Stipules adnate, ... P. pectinatus.
554 Stipules free, 556
555 Stem stout, ... P. lucens.
555 Stem slender, ... P. heterophyllus.
556 Leaves under 2 in., ... P. pusillus.
556 Leaves over 2 in., ... P. compressus.
557 Stem flattened, ... P. crispus.
557 Stem round, 558
558 Leaves linear-oblong, peduncles long, . . P. prælongus.
558 Leaves ovato-cordate, peduncles short, . . P. perfoliatus.

POTAMOGE'TON DEN'SUS (57). Opposite-leaved Pond-weed.
(1497) 6—7. Leaves translucent ½—1 in. ovato-cordate all opposite, stipules 0, stem slender forked. *Ponds and streams.*

POTAMOGE'TON NA'TANS (79). Broad-leaved Pond-weed. 6—7.
(1479-1480) Floating leaves 2—6 in. oblong olive-green, submerged leaves paler linear or lanceolate, stipules large, peduncles stout not enlarged upwards. *Ponds and ditches.*

POTAMOGE'TON HETEROPHYL'LUS (66). Various-leaved Pond-
(1487) weed. 6—7. Upper floating leaves oblong sometimes absent, lower submerged leaves 1—3 in. linear-lanceolate, stem slender 2—4 ft., stipules small, peduncles stout enlarged upwards. *Ponds and lakes.*

POTAMOGE'TON RUFES'CENS (62). Reddish Pond-weed. 7.
(1483) Lower leaves submerged lanceolate, upper leaves floating obovate or oblong reddish, drupe red ovoid acuminate. *Ponds, canals, and ditches.*

POTAMOGE'TON PECTINA'TUS (74). Fennel-leaved Pond-weed.
(1505-1507) 6—7. Leaves all similar submerged linear 3—8 in. long, stem filiform much-branched. *Ditches and canals.*

POTAMOGE'TON PUSIL'LUS (95). Small Pond-weed. 6—7.
(1502) Stem filiform slightly compressed, leaves ½—2 in. all similar linear narrow opaque, peduncles much longer than the few-flowered spike. *Rivers, ponds, and ditches.*

POTAMOGE'TON CRIS'PUS (92). Curly Pond-weed. 6—7. Stem
(1496) slender compressed, leaves 1½—3 in. oblong crisped slightly serrate, peduncles tapering curved few-flowered. *Ditches.*

Potamoge'ton prælon'gus (33). Long-stalked Pond-weed. 6—7. Leaves
(1494) all submerged oblong 3—9 in. long 1—1½ in. broad, peduncles long stout, spike dense-flowered. [G. (*Malham Tarn.*)

POTAMOGE'TON PERFOLIA'TUS (89). Perfoliate Pond-weed.
(1495) 6—8. Stem stout, leaves ovato-cordate amplexicaul all submerged 1—2 in., peduncles short stout, spike dense flowered. *Ponds and ditches.*

POTAMOGE'TON LU'CENS (73). Shining Pond-weed. 7—9. Stem
(1489) stout 3—5 ft., leaves 4—10 in. chiefly submerged oblong lanceolate undulate, stipules large. *Lakes, ponds, and streams.*

Potamoge'ton compres'sus (19). Stem compressed winged, leaves 2—8
(1498, 1499) in. semi-amplexicaul linear, peduncles longer than the spikes. [N.

II.—*ZANNICHELLIA.*

ZANNICHEL'LIA PALUS'TRIS (70). Horned Pond-weed. 5—8.
(1510) Leaves opposite submerged linear, flowers solitary minute monœcious, perianth 0, stamen 1, ovary of 4—6 carpels. *Ponds and ditches.*

ORDER 83.—Lemnaceæ.

Flowers monœcious 2 in a spathe. Perianth none. Stamens 1—2. Ovary 1-celled. Style short. Stigma simple. Plants with floating fronds, without distinction of stem and leaf.

I.—*LEMNA.*

Fronds with roots, flowers in marginal clefts of the frond.

Root single, 559
Roots many, ... L. polyrhiza.
559 Frond lanceolate, ... L. trisulca.
559 Frond orbicular, 560
560 Fronds concave, ... L. gibba.
560 Fronds flat, ... L. minor.

LEM'NA MI'NOR (105). Common Duckweed. 7—8. Frond $\frac{1}{8}$—$\frac{1}{4}$ in.
(1466) obovate or oblong, slightly convex below. *Stagnant water.*

LEM'NA TRISUL'CA (70). 6—7. Frond thin $\frac{1}{2}$—$\frac{3}{4}$ in. obovate
(1465) lanceolate, usually 3 together at right angles with a single root-fibre.

Lem'na gib'ba (50). Frond opaque $\frac{1}{2}$—$\frac{1}{3}$ in. orbicular hemispherical, 3 or
(1467) 4 together with a single root to each. [F. Rg.

LEM'NA POLYRHIZ'A (54). Frond flat $\frac{1}{4}$—$\frac{1}{2}$ in. broadly obovate with
(1468) many roots. *Ponds and ditches.*

ORDER 84.—Araceæ.

Flowers monœcious on a spadix within a spathe. Perianth hypogynous or wanting. Stamens few or many, filaments very short or none. Ovary superior. 1- (rarely 3-) celled. Fruit a berry.

Leaves hastate, ... Arum I
Leaves ensiform, ... Acorus II.

I.—*ARUM.*

AR'UM MACULA'TUM (80). Cuckoo-pint, Lords and Ladies. 3—4.
(1462) Leaves radical hastate spotted with long petioles sheathing at the base, spathe twice as long as the spadix, termination of the spadix club-shaped purple, berries crowded scarlet. *Woods and hedges.*

II.—*ACORUS.*

A'CORUS CAL'AMUS (31). Sweet Flag. 6—7. Leaves radical 3—6 ft.
(1464) ensiform, spathe long continuous with the scape 2-edged, spadix lateral narrowed upwards 3—4 in. curved thickly studded with flowers, perianth-segments 6 free membranous, stamens 6. [W.

ORDER 85.—Typhaceæ.

Marsh or aquatic plants having linear rigid leaves with sheathing bases. Flowers monœcious in cylindrical spikes or heads. Spathe none. Perianth none, or of imbricated membranous scales or hairs. Stamens 3 or 6, filaments long and weak, anthers wedge-shaped. Ovary superior 1-celled. Fruit dry indehiscent 1-celled 1-seeded.

Flowers in globose heads, ...	Sparganium I.
Flowers in cylindric spikes, ...	Typha II.

I.—*SPARGANIUM.*

Flowers in dense globular heads each with a perianth of 3 scales, stamens of staminate flowers 3, stigma of pistillate flowers awl-shaped.

SPARGA'NIUM RAMO'SUM (104). Branched Bur-weed. 6—7.
(1457) Stem 2—4 ft. high erect branched, leaves 2—5 ft. triangular at the base with concave sides, heads of staminate flowers $\frac{1}{2}$—$\frac{3}{4}$ in diameter brown. *Ditches.*

SPARGA'NIUM SIM'PLEX (92). Unbranched Bur-weed. 7—8.
(1459) Stem 1—2 ft. high erect unbranched, leaves triangular at the base with flat sides, heads of staminate flowers yellow. *Ponds, ditches, and river banks.*

Sparga'nium na'tans (46). Floating Bur-weed. 8—9. Stem simple,
(1461) leaves floating flat concave at the base, heads $\frac{1}{4}$ in. diameter.
[G. (*Lawkland Moss.*)

II.—*TYPHA.*

TY'PHA LATIFO'LIA (79). Reed-mace Bulrush. 7—8. Leaves 3–6
(1455) ft., spike of pistillate flowers $\frac{1}{2}$—1 ft. long dark brown silky bearing above it the slender yellow terminal spike of staminate flowers, perianth of 2—3 silky jointed scales. *Ponds.*

ORDER 86.—Juncaceæ.

Perianth 6-partite inferior glumaceous. Stamens 6 inserted into the base of the segments. Ovary 1- or 3-celled. Style 1. Stigmas 3. Leaves hollow or flat and channelled.

Leaves glabrous, cylindrical, ...	Juncus I.
Leaves hairy, flat, ...	Luzula II

I.—*JUNCUS.*

Leaves smooth cylindrical, perianth chaffy outer segments with a keel, ovary 3-celled, seeds many minute somewhat rough.

Leaves none, 561
Leaves present, 562
561 Stem soft with continuous pith, . . . J. communis.
561 Stem rigid with interrupted pith, . . . J. glaucus.
562 Stems leafy, 563
562 Leaves all radical, 565
563 Leaves jointed internally, 564
563 Leaves flat or grooved not jointed, 566
564 Perianth segments obtuse, ... J. obtusiflorus.
564 Perianth segments acute, ... J. articulatus.
565 Stem tufted round, flowers 3 terminal, . . J. triglumis.
565 Stem compressed, cyme terminal branched, . J. squarrosus.
566 Under 8 inches in height, ... J. bufonius.
566 Stem 1—2 ft. high, ... J. compressus.

JUN'CUS COMMU'NIS (110). Common Rush. 7—8. Stem soft
(1435) 1—3 ft. high with continuous pith, leaves all reduced to sheaths,
(1436) panicle spreading or globose many-flowered about half-way up the stem, stamens 3. *Wet places.*

JUN'CUS GLAU'CUS (89). Hard Rush. 7—8. Stem rigid glaucous
(1433) 1—2 ft. high with interrupted pith, panicles lateral lax much-branched,
(1434) stamens 6. *Wet places.*

JUN'CUS ARTICULA'TUS (109). Jointed Rush. 6—8. Stem 1—2 ft.
(1439, 1442, high slender hollow with internal joints, leaves slightly com-
1443) pressed, panicle terminal. *Bogs, especially in mountain districts.*

Jun'cus triglu'mis (21). Three-flowered Rush. 7—8. Stems tufted round
(1446) slender and wiry 6—12 in. high, leaves all radical subulate channelled, cyme 3-flowered terminal. [G. (*Whernside.*)

Jun'cus obtusiflo'rus (36). 7—8. Stems 2—3 ft. not tufted, leaves few
(1440) terete, panicle terminal corymbose, perianth-segments obtuse as long as the ovoid mucronate capsule. [W.

JUN'CUS SQUARRO'SUS (105). Heath-Rush. 6—7. Leaves 3—7
(1427) in. all radical crowded rigid triangular, stems densely tufted, cyme terminal. *Moorlands.*

JUN'CUS BUFO'NIUS (112) Toad-Rush. 7—8. Stem slender
(1425) branched leafy 2—8 in. very pale jointed, leaves few angular bristle-like. *Watery places.*

JUN'CUS COMPRES'SUS (77). Round-fruited rush. 6—8. Stems (1428) erect ½—2 ft. tufted not branched, leaves slender channelled above, (1429) panicles terminal. *Moist pastures.*

II.—*LUZULA.*

Leaves hairy with long white hairs, perianth chaffy, ovary 1-celled 3-seeded.

Stem more than 1 foot high, ... L. sylvatica.

Stem less than 1 foot high, 567

567 Leaves slightly hairy, ... L. pilosa.

567 Leaves very hairy, ... L. campestris.

LU'ZULA SYLVAT'ICA (105). Great Hairy Wood-Rush. 5—6. Stems (1450) few 1—2 ft., leaves mostly radical ½—1 ft. long ½ in. broad with scanty hairs, cyme large compound. *Woods.*

LU'ZULA PILO'SA (106). Broad-leaved Hairy Wood-Rush. 5—6. (1449) Stems many 6—12 in. high, leaves ⅛—¼ in. broad sparingly hairy, flowers dark brown in a little-branched lax cyme. *Woods.*

LU'ZULA CAMPES'TRIS (105). Field Wood-Rush. 4—6. Stems (1453, 1454) 4—12 in., leaves very hairy, flowers in dense clusters. *Woods.*

ORDER 87.—Cyperaceæ.

Grass or rush-like herbs with solid often triangular stems, leaves very slender with entire sheaths. Flowers perfect or with stamens or pistil only, each flower in the axil of a single scale or *glume*, glumes imbricated in spikelets. Perianth none or of 3—6 hypogynous scales. Stamens usually 3. Ovary 1-celled often surrounded by bristles. Style 1. Stigmas 2—3 papillose.

Flowers perfect, 568

Flowers imperfect, ... Carex I.

568 Glumes in 2 ranks, ... Schœnus II.

568 Glumes imbricated on all sides, 569

569 Bristles absent, ... Isolepis III.

569 Bristles present, 570

570 Bristles of ripe fruit included in glumes, 571

570 Bristles of ripe fruit much longer than the glumes, ... Eriophorum IV.

571 Spikelet solitary terminal many-flowered, . . . Eleocharis V.

571 Spikelets many, 572

572 Spikelets alternate forming a spike, . . Blysmus VI.

572 Spikelets in lateral bundles, ... Scirpus VII.

572 Spikelets in terminal panicles, . . Rhynchospora VIII.

I.—*CAREX.*

Glumes imbricated forming spikelets, staminate flowers without perianth or bristles, stamens 2—3, pistillate flowers of a single compressed or triangular ovary enclosed by an urceolate 2-toothed sac and crowned by 2 or 3 stigmas, fruit minute enclosed in the sac (*perigynium*).

Spikelet solitary terminal, 573
Spikelets numerous compound (some flowers in each spikelet staminate and some pistillate), 574
573 Stamens and pistils on different plants, . . . C. dioica.
573 Stamens and pistils in separate flowers in the same spikelet, ... C. pulicaris.
574 Spikelets short all similar, 575
574 Upper spikelets chiefly staminate usually more slender than the lower and chiefly pistillate ones, 576
575 Spikelets combined into a spike, 577
575 Spikelets combined into a panicle, 580
576 Stigmas 2 (sometimes 3 in C. vulgaris), 581
576 Stigmas 3, 582
577 Spikelets in a crowded head ½—1½ in. . . . C. divisa.
577 Spikelets in an oblong interrupted spike ½—3 in., 578
578 Fruit with a broad wing, ... C. arenaria.
578 Fruit scarcely winged, 579
579 Terminal spikelet staminate at the base, . C. canescens.
579 Terminal spikelet staminate at the top, . C. disticha.
580 Spikelet with staminate flowers at the top only, 583
580 Spikelet with staminate flowers at the base only, 584
581 Pistillate spikelets short ovoid, . . . C. vulgaris.
581 Pistillate spikelets long lanceolate or linear, 585
582 Beak of perigynium short or none, 586
582 Beak of perigynium long bifid, 587
583 Stems stout, 589
583 Stems wiry, 590
584 Bracts long or leaflike, 591
584 Bracts none or subulate, ... C. leporina.
585 Sheath-edges filamentous, ... C. stricta.
585 Sheath-edges not filamentous, . . . C. acuta.
586 Perigynia glabrous, 592
586 Perigynia hairy, 593

587 Perigynia hairy, 588
587 Perigynia glabrous, 594
588 Bracts without sheaths, ... C. filiformis.
588 Bracts with long sheaths, ... C. hirta.
589 Stem 4—5 ft. inflorescence an elongate panicle, C. paniculata.
589 Stem 2—3 ft. inflorescence a cylindrical spike, C. vulpina.
590 Stems densely tufted, ... C. muricata.
590 Stems not tufted, ... C. teretiuscula.
591 Spike ½—1 in., ... C. stellulata.
591 Spike 2—5 in., ... C. remota.
592 Stem 6—12 in., ... C. limosa.
592 Stem 1—2 ft., 595
592 Stem 3—6 ft., ... C. pendula.
593 Flowering April to May, ... C. præcox.
593 Flowering June to July, ... C. pilulifera.
594 Staminate spikelet solitary, 596
594 Staminate spikelets several, 597
595 Pistillate spikelets drooping, . . . C. glauca.
595 Pistillate spikelet erect, 598
596 Pistillate spikelets short, 599
596 Pistillate spikelets long, 600
597 Fruit inflated, 601
597 Fruit not inflated, 602
598 Fruit veined, leaves pale green, ... C. pallescens.
598 Fruit not veined, ... C. panicea.
599 Pistillate spikelets roundish, 604
599 Pistillate spikelets cylindrical, 605
600 Beak of perigynium long, ... C. sylvatica.
600 Beak obscure, ... C. strigosa.
601 Stem with acute angles, leaves flat, . . C. vesicaria.
601 Stem with obtuse angles, leaves channelled, . C. ampullacea.
602 Pistillate spikelets drooping, ... C. Pseudo-cyperus.
602 Pistillate spikelets erect, 603
603 Stem 2—3 ft., ... C. paludosa.
603 Stem 3—5 ft., ... C. riparia.
604 Pistillate spikelets close together, ... C. flava.
604 Pistillate spikelets distant, ... C. distans.
605 Fruit with 2 green ribs and a broad smooth beak, C. binervis.
605 Fruit striate with a long rough-edged beak, . C. lævigata.

CA'REX DIOI'CA (77). Separate-headed Sedge. 5—6. Stem 6—10 in.
(1553) high wiry smooth, root creeping, leaves setaceous, pistillate spikelet solitary terminal ovate, perigynia erect or spreading. *Bogs and moorlands.*

CA'REX PULICA'RIS (104). Flea Sedge. 5—6. Stem 3—8 in.
(1555) slender smooth grooved, leaves setaceous tufted, spikelet slender staminate at the apex pistillate at the base, perigynia reflexed distant (having a certain resemblance to insects clustering round the stem). *Bogs.*

CA'REX VULGA'RIS (106). Common Sedge. 6—8. Stem triangular
(1587) ½—2 ft. short and curved or long slender and erect, leaves very slender with incurved margins (best seen when dry), spikelets 3—5 sessile short the terminal one staminate the rest pistillate, stigmas 2, glumes obtuse dark purplish-brown, perigynia elliptical with a very short beak. *Marshes and wet meadows.*

Ca'rex divi'sa (26). Bracteate Marsh Sedge. 6—7. Stem 1—3 ft. very
(1559) slender, spikelets all similar sessile short crowded forming an oblong-ovate spike with a slender leaf-like bract at its base, leaves long very narrow light green with involute margins, perigynia ovoid, beak bifid serrulate. [G. (*Malham Cove.*)

CA'REX DIS'TICHA (78). Soft-brown Sedge. 7. Stem 1—3 ft.,
(1560) spikelets numerous ascending acute upper and lower pistillate middle ones staminate crowded in an elongate head or spike ½—3 in. long which when mature is divided into two portions by the remains of the barren spikelets in the centre, leaves ⅛—⅛ in. broad flat, perigynia stalked ovoid ribbed, beak bifid serrulate. *Marshes and wet meadows.*

CA'REX LEPORI'NA (110). Hare's-foot Sedge. 6—7. Stem trian-
(1577) gular 6—10 in. high smooth, spikelets 3 (or 4), ovate crowded into a compact lobed head, spikelets staminate at the base only, leaves shorter than the stem flat, perigynia ovoid striate with rigid margins and a bifid serrulate beak. *Wet places.*

CA'REX STRIC'TA (40). Tufted Bog Sedge. 5—6. Stems 1—3 ft.
(1581) high triangular densely tufted, leaves ⅛—¼ in. broad long erect flat, sheaths of leaves filamentous at the edges, spikelets erect cylindrical ¾—2 in. long. *Bogs.*

CA'REX ACU'TA (64). Slender-spiked Sedge. 5. Stem 2—3 ft. stout
(1582) triangular tufted, leaves ⅛—⅛ in. broad as long as the stem, sheaths not filamentous, spikelets long and slender (1—4 in.) bracts very long. *Watery places.*

CA'REX CANES'CENS (69). Whitish Sedge. 6—7. Stems slender
(1576) triangular tufted 1 ft. high, spikelets 4—6 pale-green ovoid staminate at the base only, bracts 0, perigynia acuminate not beaked. *Bogs and marshes.*

Ca'rex filifor'mis (34). 5. Stem slender 2—3 ft., leaves numerous very
(1618) slender stiff, bracts long with short sheaths, spikelets erect, upper staminate ones 2—3 very slender 1—2½ in. long, lower pistillate ones 1—3 lax ⅓—1 in. long, perigynia large narrow-ovoid with a long bifid beak. [Wl.

CA'REX HIR'TA (90). Hairy Sedge. 5—6. Stem slender 1—2 ft.,
(1619) leaves long flat ¼—⅓ in. broad hairy, bracts long leaflike with long sheaths, spikelets long-pedicelled erect cylindric, upper staminate ones 2 or 3 close ½—1 in. long, lower pistillate ones 2—5 distant 1—1½ in. long, perigynia large ovoid hairy with a long bifid beak. *Damp woods.*

CA'REX STELLULA'TA (109). Little Prickly Sedge. 5—6. Stems
(1569) slender, 6—18 in. densely tufted, bracts small, spikelets 3—4 roundish distant, perigynia ovoid with a broad bifid beak 7—8 together in a roundish star-like head. *Marshes.*

CA'REX REMO'TA (78). Distant-spiked Sedge. 6—7. Stem slender
(1570) 1—2 ft. tufted with spreading branches, spikelet oblong distant below closer above, bracts very long lower ones longer than the stem. *Shady places.*

CA'REX PANICULA'TA (82). Great panicled Sedge. 6—7. Stem
(1564) 3—5 ft. triangular stout leafy, leaves harsh long narrow tufted, spikelets many in an elongate (2—6 in.) pale-brown panicle or spike, bracts none or setaceous inconspicuous. *Marshes.*

CA'REX VULPI'NA (83). Great Sedge. 6—7. Stems many 2—4 ft.
(1565) rough, leaves broad ¼—½ in. flat very rough at the margins, spikelets numerous crowded in a cylindrical (1—3 in.) spike, bracts setaceous spreading conspicuous. *Marshes.*

CA'REX MURICA'TA (78). Greater Prickly Sedge. 5—6. Slender
(1567) tufted 1—2 ft. high, spikelets few staminate at the top only in slender spikes or panicles, bracts none or setaceous, perigynia spreading with a broad serrulate bifid beak. *Marshes and wet meadows.*

CA'REX TERETIUS'CULA (53). Lesser Panicled Sedge. 6. Slen-
(1562) der not tufted 1—2 ft., spikelets few staminate at the top only, panicle ovoid compact, perigynia spreading with a long rough 2-toothed beak. *Bogs and wet meadows.*

Ca'rex limo'sa (19). Mud Sedge.—Green-and-gold Sedge. 6. Stem
(1590) filiform 6—12 in., leaves as long as the stem ⅛ in. broad, bracts narrow as long as the capillary pedicels of the 1—3 short drooping pistillate spikelets, staminate spikelet erect solitary slender, glumes large pale perigynia green with a short entire beak.
[G. (*Langcliffe, Malham Tarn.*)

CA'REX PEN'DULA (72). Great Pendulous Sedge. 5—6. Stem
(1606) 3—6 ft. leafy rough at the angles above, terminal spikelet staminate cylindrical 4—6 in., pistillate spikelets many 3—5 in. slender drooping, glumes small oblong pale-brown awned, bracts leafy with long sheaths, perigynia acuminate with a short notched beak. *Damp woods.*

CA'REX PRÆ'COX (94). Vernal Sedge. 4—5. Stem 3—8 in., leaves
(1598) short flat curved rather broad, staminate spikelet solitary, pistillate spikelets 2—3 crowded sessile, perigynia brown hispid equalling the small broadly ovate brown-edged glumes. Conspicuous by its numerous yellow anthers. *Dry pastures.*

CA'REX PILULIF'ERA (95). Round-headed Sedge. 6—7. Stem
(1596) 6—18 in. slender rough, staminate spikelet solitary slender, pistillate spikelets 2—4 crowded roundish sessile, bracts short and narrow without sheaths, perigynia short stalked pubescent with a short notched beak. *Heaths.*

CA'REX GLAU'CA (106). Glaucous Heath Sedge. 6—7. Stem ½—2
(1588) ft. wiry smooth, leaves narrow flat glaucous erect or recurved, spikelets 4—6 cylindrical nearly erect many-flowered. *Moors.*

CA'REX PALLES'CENS (79). Pale Sedge. 6. Stem wiry 1—2 ft.
(1600) tufted, leaves hairy erect flat, staminate spikelets erect yellowish-red, pistillate spikelets 2—3 oblong shortly stalked lower spikelets drooping, fruit obovoid blunt without a beak. *Marshes.*

CA'PREX PANIC'EA (111). Pink-leaved Sedge. 6. Stem 1—2 ft. leafy
(1601) curved tufted, leaves glaucous flat, staminate spikelets 1—2 narrow club-shaped, anthers yellow, pistillate spikelets 2—4 about ¾ in. loose, glumes ovate dark purple, fruit smooth ovoid dotted not veined with a very short obliquely notched beak. *Marshes and damp meadows.*

CA'REX VESICA'RIA (69). Short-spiked Bladder Sedge. 6. Stem
(1623) 1—2 ft. stout rough, leaves ¼ in. broad flat, staminate spikelets 1—3
(1624) slender pale-brown, pistillate 1—3 in. cylindric ⅓ in. diameter when ripe, glumes much smaller than the perigynia brown, perigynia large (⅓ in.) spreading ovoid inflated with a stout beak. *Bogs and marshes.*

CA'REX AMPULLA'CEA (99). Slender-beaked Bladder Sedge. 6.
(1623) Stem 1—2 ft. stout smooth, leaves glaucous channelled, staminate spikelets 2—3 slender, pistillate 2—4 cylindric stout, perigynia inflated ⅛ in. obovoid with a very slender beak. *Marshes and bogs.*

Ca'rex Pseudo-Cype'rus (46). Cyperus-like Sedge. 6—7. Stem 2—3
(1620) ft. rough, leaves ¼—½ in. broad rough, bracts leaf-like broad much overtopping the stem, staminate spikelets 2—3 slender forming a solitary terminal spike, pistillate spikelets 5—6 cylindrical 2 inches long on long stalks, glumes awned, fruit terminating in a long deeply split rigid beak. [G. (*Penyghent.*)

CA'REX PALUDO'SA (70). Lesser Common Sedge. 5. Stem 2—3
(1621) ft. rough, leaves ¼—½ in. broad glaucous rough keeled, staminate spikelets terminal stout, pistillate spikelets cylindrical erect dark brown, bracts long and leafy, perigynia ovoid ribbed with a short 2-toothed beak. *River banks and ditches.*

CA'REX RIPA'RIA (72). Great Common Sedge. 5. Stem 3—5 ft.
(1622) stout rough, leaves ½—⅝ in. broad rough keeled, staminate spikelets terminal stout, pistillate spikelets cylindrical long stout inclined, bracts broad, perigynia ovoid ribbed with a short 2-toothed beak. *River banks and ditches.*

CA'REX SYLVAT'ICA (83). Pendulous Wood-Sedge. 5—6. Stem
(1609) slender 1—2 ft. tufted, leaves bright green flat soft broad, spikelets with long pedicels very slender loose drooping, perigynia loose with a long slender bifid beak. *Damp woods.*

Ca'rex strigo'sa (35). Loose Pendulous Sedge. 5—6. Stems 2½—2 ft.
(1607) leafy tufted, leaves flat broad, spikelets very slender loose drooping with long pedicels, perigynia smooth without a beak.
[G. (*Settle, Arncliffe.*)

CA'REX FLA'VA (58). Yellow Sedge. 5—6. Stems ¼—1½ ft. tufted,
(1616) leaves flat yellowish-green, staminate spikelet erect 1 in. fusiform, pistillate spikelets ¼—½ in. oblong, bracts long, sheaths including the stalks of the spikelets, perigynia inflated with a long slender sometimes recurved beak. *Heaths and bogs.*

CA'REX DIS'TANS (78). Loose Sedge. 6. Stems 1—1½ ft. slender
(1612) tufted, leaves flat, bracts leafy not overtopping the stem with long
(1614) sheaths, staminate spikelets slender, pistillate spikelets 1—3 very distant erect cylindrical. *Marshes and wet meadows.*

CA'REX BINER'VIS (93). Green-ribbed Sedge. 6—7. Similar to C.
(1611) distans but taller with very slender stems, the pistillate spikelets browner more numerous stouter and longer with dark purple glumes with a green midrib, fruit with two principal green ribs. *Heaths and moors.*

CA'REX LAEVIGA'TA (54). Smooth-stalked Beaked Sedge. 6. Stem
(1610) 1—3 ft., leaves ⅓ in. broad, bracts leaflike sheathing, spikelets distant long-pedicelled drooping, fruit furrowed with a long slightly rough-edged beak. *Marshes and wet places.*

II.—*SCHŒNUS.*

SCHŒ'NUS NI'GRICANS (70). Bog-rush. 6—7. Stems 6—18 in.
(1550) naked round wiry in hard tufts with numerous black or reddish-brown sheaths terminating in short rigid leaves, flowers conspicuous from the yellow anthers in an obovate bracteate spike of numerous compressed spikelets with dark glumes. *Bogs and wet moors.*

III.—*ISOLEPIS.*

ISOLE'PIS SETA'CEA (100). Bristle-stalked Mud-rush. 7—8. Stem
(1531) 3—6 in. filiform rigid tufted, leaves short setaceous, spikelets 1—3 in a lateral rounded head, stamens 2—3, stigmas 8. *Sandy damp places.*

IV.—*ERIOPHORUM.*

Tufted grass-like plants, spikelets terminal or lateral, glumes imbricated all round the stem, flowers perfect, bristles many at length much longer than the spikelets assuming the form of long silky hair, stamens 1—3, stigmas 2—3.

Spikelets solitary terminal, ... E. vaginatum.
Spikelets many lateral, ... E. polystachyon.

ERIOPH'ORUM VAGINA'TUM (89). Hare's-tail Cotton-grass.
(1543) 4—5. Stems many tufted 6—10 in. triangular above round below with 1 or 2 inflated leafless sheaths above the middle, leaves filiform triangular short, spikelets terminal ovate many-flowered. *Boggy moors.*

ERIOPH'ORUM POLYSTA'CHYON (109). Common Cotton-grass.
(1544) 5—6. Stem 6—15 in. rigid slightly triangular, leaves chiefly radical
(1545) smooth flat triangular at the tip, spikelets 4—12 in lateral corymbose, cymes drooping with 2—3 bracts. *Bogs.*

V.—*ELEOCHARIS.*

Tufted grass-like plants, spikelets many-flowered solitary terminal, glumes many imbricated on all sides, bristles 3—6 not longer than the glumes, stamens 3, style jointed at the base, stigmas 3.

Plants under 6 inches high, 606
Plants 6—12 inches high, 607
606 Stem round, ... E. cæspitosa.
606 Stem quadrangular, ... E. acicularis.
607 Root creeping, 608
607 Root with one tuft of leaves and stems not creeping, . E. multicaulis.
608 Fruit swollen at the top, ... E. palustris.
608 Fruit beaked—not swollen at the top, . . E. pauciflora.

ELEOCH'ARIS CÆSPITO'SA (101). Deer's Hair. 6—7. Stems
(1527) densely tufted wiry, bristles 4—6 smooth, fruit obovoid triangular acuminate. *Heaths and moors.*

ELEOCH'ARIS ACICULA'RIS (64). Least Spike-rush. 7—8.
(1522) Stems many very slender 2—8 in., bristles 1—3, fruit triangular ribbed crowned with the almost globose base of the style. *Sandy margins of pools.*

ELEOCH'ARIS MULTICAU'LIS (77). Many-stalked Spike-rush.
(1525) 6—7. Root hardly creeping with one tuft of leaves and stems 6—12 in. high, fruit triangular crowned by the triangular base of the style. *Marshes and pools.*

ELEOCH'ARIS PALUS'TRIS (107). Creeping Spike-rush. 6—7.
(1523) Root creeping with many tufts of leaves and stems, fruit crowned with the flattened triangular base of the style, stigmas 2. *Bogs and ditches.*

ELEOCH'ARIS PAUCIFLO'RA (84). Chocolate-headed Spike-rush.
(1526) Stems tufted round with narrow leafless sheaths, fruit triangular obovate mucronate, bristles 3—6 barbed. *Moorlands.*

VI.—*BLYSMUS.*

BLYS'MUS COMPRESS'US (51). Compressed Club-rush. 6—7.
(1540) Stem 4—10 in. triangular, spikelets alternate imbricated on opposite sides of the stem forming a flat terminal spike with a leafy bract, leaves shorter than the stem keeled flat rough at the edges and keel. *Wet pastures and marshes.*

VII.—*SCIRPUS.*

Flowers perfect, glumes imbricated on all sides, spikelets many-flowered in terminal or lateral clusters, bristles about 6 not longer than the glumes, style not jointed at the base, fruit not swollen at the top.

Stem leafless, ... S. lacustris.
Stem leafy, 609
609 Spikelets large brown, ... S. maritimus.
609 Spikelets small green, ... S. sylvaticus.

SCIR'PUS LACUS'TRIS (95). Bulrush. 7—8. Stem round 1—8 ft.
(1533- leafless spongy ¾ in. diameter at the base, spikelets ⅓ in. numerous
1535) forming a dense terminal compound panicle. *Marshes.*

SCIR'PUS SYLVAT'ICUS (70). Wood Club-rush. 7—8. Stem
(1539) 1—3 ft. leafy, leaves flat ¾ in. broad keeled, spikelets small ovoid green forming a highly compound terminal panicle. *Moist woods.*

SCIR'PUS MARIT'IMUS (77). Sea Club-rush. 7—8. Stems 1—3
(1538) ft. tufted rigid leafy below, leaves ½ in. broad channelled, spikelets ½—1 in. few brown in a corymbose cyme. *Salt marshes.*

VIII.—*RHYNCHOSPORA.*

Spikelets terete in terminal or axillary panicles or corymbs, glumes imbricate all round the axis, hypogynous bristles 6 or more shorter than the glumes, fruit compressed terminated by the 2-cleft style.

RHYNCHO'SPORA ALBA (75). White Beak-Sedge. 6—7. Stems
(1548) 6—18 in. very slender tufted, leaves mostly radical subulate, spikelets white usually 1-flowered, in small terminal corymbs, ½ in. diam. *Bogs.*

ORDER 88.—Gramineæ.

Flowers consisting of closely imbricated bracts or *glumes* usually perfect (sometimes staminate or pistillate only, and sometimes *neuter* without either stamens or pistil) one or more in a *spikelet*. Each spikelet consists of a pair of bracts called the *outer glumes*, within which are included the florets and usually one or more *empty glumes*. Each floret consists of a pair of glumes called the *palea*, enclosing the stamens and the ovary. Outer glumes usually 2 alternate. Paleæ 2 alternate, the outer one (sometimes termed the *flowering glume*) simple usually keeled often armed with an *awn*, the inner or upper with two keels or nerves. Scales (or *lodicules*) minute, 2 or 3, sometimes wanting. Stamens usually 3 hypogynous with *versatile* anthers. Ovary superior, styles usually 2, stigmas feathery. Florets usually 1—3 in a spikelet. Spikelets arranged in spikes, racemes, or panicles. The axis of the spike or panicle is termed the *rachis*. When the spikelets are sessile along a common stalk the inflorescence is a *spike*, and if the spikelets all turn one way (as in *Nardus stricta* or Mat Grass) it is a one-sided spike. When the spikelets are stalked the inflorescence is a *raceme*, or if the stalks are branched a *panicle* either spreading (as in the *Quaking Grass*) or so close as to resemble a spike. Stem cylindrical hollow and jointed. Leaves alternate with split sheaths.

Stamens 2, ... Anthoxanthum I.

Stamens 3, 610

610 Style and stigma 1, ... Nardus II.

610 Styles or stigmas 2, 611

611 Spikelets sessile—Inflorescence a true spike, 612

611 Spikelets stalked—Inflorescence a raceme panicle or spike-like cylindrical raceme, 613

612 Spike compound, ... Panicum III.

612 Spike simple, 614

613 Spikelets 1-flowered, 615

613 Spikelets with 2 or more flowers, 616

614 Spikelets solitary, 617

614 Spikelets in threes, ... Hordeum IV.

615 Inflorescence a dense cylindrical spike-like panicle, 618

615 Inflorescence a lax panicle, ... 619

616 Florets all perfect, ... 620

616 Florets only one perfect the rest neuter or imperfect, 621

617 Empty glumes 2, flowering glumes many, 622

617 Empty glumes 1, flowering glumes many, ... Lolium V.

618 Palea single awned, ... Alopecurus VI.

618 Paleæ 2 awnless, ... Phleum VII.

619 Outer glumes equal, 623
619 Upper glume smaller than the lower, ... Agrostis VIII.
620 Florets with an awn, 624
620 Florets without an awn, 625
621 Panicles dense resembling an ovate spike, . . . Ammophila IX.
621 Panicle ovoid loose spike-like, ... Phalaris X
621 Panicle pyramidal spreading, 626
622 Spikelets 2—4 times as long as broad, . . Triticum XI.
622 Spikelets many times longer than broad, Brachypodium XII.
623 Flowering glumes with few hairs, ... Milium XIII.
623 Flowering glumes with many silky hairs, . . Calamagrostis XIV.
624 Aquatic plants, ... Phragmites XXIV.
624 Land plants, 627
625 Spikelets in fascicles, the lower ones with an involucre at the base, 629
625 Involucre absent, 630
626 Perfect floret with a short awn, . . Arrhenatherum XV.
626 Perfect floret unawned, ... Holcus XVI.
627 Empty glumes smaller than the flowering glumes, 628
627 Empty glumes larger than the flowering glumes, 631
628 Fruit adherent to the palea, 633
628 Fruit not adherent to the palea, 634
629 Panicle ovate, ... Sesleria XXI.
629 Panicle linear one-sided, ... Cynosurus XXII.
630 Fruit adherent to the palea, ... Briza XXIII.
630 Fruit not adherent to the palea, 632
631 Spikelets 2-flowered, flowering glumes small toothed or bifid awned at the back, ... Aira XVIII.
631 Spikelets 3-flowered, flowering glumes large terminating in bristly points with a long twisted awn, ... Avena XIX.
632 Empty glumes much longer than the flowering glumes, ... Triodia XXV.
632 Empty glumes shorter than the flowering glumes, 635
633 Flowering glumes 3—5 nerved with a terminal awn, . Festuca XVII.
633 Flowering glumes 5—9 nerved, awned below the apex, ... Bromus XX.

634 Panicle somewhat one-sided, spikelets crowded at the ends of the long naked branches, ... Dactylis XXVI.

634 Panicle spike-like, ... Kœleria XXVII.

635 One or both empty glumes 5 or more nerved, . . Melica XXVIII.

635 Empty glumes never more than 3-nerved, 636

636 Outer palea 2-nerved, ... Molinia XXIX.

636 Outer palea with 3—7 parallel nerves, 637

637 Glumes convex, tip acute or obtuse, 638

637 Glumes compressed keeled, ... Poa XXX.

638 Tip of flowering glumes torn, . . Catabrosa XXXI.

638 Tip of flowering glumes entire, . . Glyceria XXXII.

I.—*ANTHOXANTHUM.*

ANTHOXAN'THUM ODORA'TUM (110). Sweet-scented Vernal (1639) Grass. 6—7. Stem 1—2 ft. high, panicle yellow spiked compact oblong, each spikelet with 2 neuter awned florets and one perfect floret without an awn, stamens 2, lodicules 0, anthers large. *Meadows.*

II.—*NARDUS.*

NAR'DUS STRIC'TA (107). Mat-Grass. 6—7. Stem 2—8 in. erect (1755) slender rigid, spikelets ½—⅔ in. sessile in two rows forming a one-sided spike 1—3 in. long, empty glumes 0, lodicules 0, style 1. *Moors and heaths.*

III.—*PANICUM.*

PAN'ICUM CRUS-GAL'LI. Loose Panic Grass. 7—8. Stems 1—4 ft. (1628) stout, leaves ½ in. diameter flat glabrous tinged with purple rough at the edges, spike interrupted, branches alternate or opposite, exterior palea with an awn or bristle. *Fields and waste places in the south-east of England.*

IV.—*HORDEUM.*

Spikelets one-flowered in threes sessile forming a spike, one of the three only usually perfect, exterior palea ending in a long awn, fruit adherent to the palea.

Florets of central spikelets staminate, of lateral spikelets perfect, ... H. sylvaticum.

Florets of lateral spikelets imperfect, of central spikelets perfect, 639

639 Glumes all setaceous rough, ... H. pratense.

639 Glumes of middle floret linear lanceolate ciliate, H. murinum.

Hor'deum sylvat'icum (25). Wood Barley. 7—8. Stem 1—3 ft. erect
(1756) smooth, spike round compact, central floret imperfect, glumes awl-shaped, awn twice as long as the glume. [G. (*Malham Cove, Stackhouse.*)

HOR'DEUM PRATEN'SE (60). Meadow Barley. 6—7. Stem 1—2
(1757) ft. high erect smooth, spike compressed, central floret perfect, glumes setaceous rough, awn not longer than the glume, keels of palea not ciliate. *Moist pastures.*

HOR'DEUM MURI'NUM (75). Wall Barley. 6—7. Stem 6—12 in.
(1758) erect smooth, spike compact, central floret perfect, glumes of middle spikelet lanceolate fringed, of lateral florets setaceous rough, keels of palea ciliate. *Dry places.*

Hordeum distichum or Two-rowed Barley, characterised by its very long awns, is the cultivated Barley.

V.—*LOLIUM.*

Spikelets many-flowered bracteate alternate sessile in a flat spike, empty glume solitary.

Glumes longer than the spikelet, awns long, . . L. temulentum.
Glumes shorter than the spikelet, awns o, . . . L. perenne.

LO'LIUM TEMULEN'TUM (64). Bearded Darnel. 6—7. Stem
(1748) 1—2 ft., empty glume longer than the spikelet, awn long, spikelets 5—7 flowered. *Cornfields.*

LO'LIUM PEREN'NE (112). Darnel or Rye-grass. 6—7. Stem 1—2
(1746) ft., empty glume shorter than the spikelets, awns short or none, spikelets 8—15 flowered. *Fields.*

VI.—*ALOPECURUS.*

Spikelets 1-flowered laterally compressed in thick cylindric spike-like panicles, glumes keeled united at the base fringed, empty glumes awnless, flowering glume with an awn from the middle of the back, inner palea wanting, lodicules absent, style single or double hairy.

Stem ascending, bent at the joints, 641
Stem erect, 640
640 Panicle obtuse, ... A. pratensis.
640 Panicle acuminate, ... A. agrestis.
641 Awn scarcely longer than the flowering glume, . . A. fulvus.
641 Awn twice as long as the flowering glume, . . A. geniculatus.

Alopecu'rus ful'vus (25). 7. Stem 1—1½ ft. procumbent, panicle cylindrical
(1643) obtuse, awn hardly longer than the glume. [M.

ALOPECU'RUS PRATEN'SIS (104). Common Fox-tail Grass.
(1646) 4—6. Stem 1—2 ft. erect smooth, panicle cylindrical obtuse 1½—2½ in. long. *Meadows.*

ALOPECU'RUS GENICULA'TUS (108). Floating Fox-tail Grass.
(1644) 4—8. Stem 6—18 in. ascending smooth bent at the joints, panicle cylindrical obtuse 1—1½ in. long. *Wet meadows and ditches.*

ALOPECU'RUS AGRES'TIS (60). Slender Fox-tail Grass. 4—6.
(1642) Stem 1—2 ft. erect rough, panicle cylindrical 2—3 in. slender acute. *Fields and roadsides.*

VII.—*PHLEUM.*

PHLE'UM PRATEN'SE (104). Common Cat's-tail Grass. 6—7.
(1650) Stem 1—2 ft. erect smooth, spikelets one-flowered in a dense cylindric spike-like panicle 1—6 in. long, glumes truncate spine-tipped keeled and fringed on the keel, awn ⅓ length of glume. *Pastures.*

VIII.—*AGROSTIS.*

Panicle loose, spikelets very small, glumes nearly equal awnless, paleæ unequal the exterior with or without an awn, stigmas feathery.

Palea awned, ... A. canina.
Palea awnless, 642
642 Panicle always spreading, ... A. vulgaris.
642 Panicle compact after flowering, ... H. alba.

AGROS'TIS CANI'NA (93). Brown Bent-grass. 6—7. Stem 1—2
(1655) ft., leaves 2—5 in. narrow, panicle 2—4 in. erect, branches long slender spreading, empty glumes 2 unequal, inner palea wanting, outer palea toothed awned, awn bent. *Moors.*

AGROS'TIS VULGA'RIS (112). Fine Bent-grass. 7—8. Stem 1—1½
(1657) ft., panicle always spreading, branches slender, empty glumes 2 nearly equal, inner palea 2-nerved, outer palea 3-nerved 3 times as long as the inner palea, awn short or none. *Pastures and roadsides.*

AGROS'TIS AL'BA (103). Marsh Bent-grass, Fiorin-grass. 7—8.
(1656) Stem 1—2 ft., leaves short flat narrow acute, panicle spreading in flower contracted in fruit, empty glumes 2 nearly equal, inner palea 2-nerved, outer palea 5-nerved twice as long as the inner palea awnless. *Pastures and waste places.*

IX.—*AMMOPHILA.*

AMMOPH'ILA ARUNDINA'CEA (60). Sea-reed. 7—8. Stem 2—4
(1667) ft., leaves long rigid glaucous, panicle spike-like 3—6 in. cylindrical acuminate, empty glumes 2 long narrow keeled, paleæ similar to the glumes. *Seashores.*

X.—*PHALARIS.*

PHAL'ARIS ARUNDINA'CEA (109). Reed Canary-grass. 7—8.
(1638) Stem 2—3 ft., leaves $\frac{1}{8}$—$\frac{1}{2}$ in. broad long flat, panicle erect 4—8 in. with spreading branches with the spikelets crowded at their ends, spikelets 1-flowered with 2 empty glumes enclosing the floret and exceeding it, outer palea broad awnless, inner palea much smaller, glumes not winged on the keel. *Sides of lakes and rivers.*

A variety with leaves striped with white lines is cultivated in gardens under the name of *Ribbon-grass.*

Phalaris canariensis or *Canary-grass* (naturalised and common in waste places) has an ovate roundish spike-like panicle with pale yellowish-green glumes winged on the keel.

XI.—*TRITICUM.*

Inflorescence a spike, spikelets many-flowered solitary sessile in notches of the rachis and parallel to it, empty glumes 2 unequal shorter than the flowering glumes, inner palea with ciliate nerves, outer palea rigid many-nerved often awned.

Root fibrous, ... T. caninum.
Root creeping, 643
643 Outer palea acuminate awned, . . . T. repens.
643 Outer palea obtuse awnless, ... T. junceum.

TRIT'ICUM CANI'NUM (82). Fibrous-rooted Wheat-grass. 6—7.
(1749) Stem 1—3 ft. slender, root fibrous, spike 2—10 in. very slender, spikelets slender, empty glumes lanceolate 3—5-ribbed shortly awned, outer palea linear-lanceolate 5-nerved awned.

TRIT'ICUM RE'PENS (108). Couch Grass. 6—7. Root creeping,
(1750) stem 1—4 ft. ascending bent, spike 2—10 in. rigid, spikelets $\frac{3}{4}$—1 in. rigid, empty glumes 5-ribbed awned or not, outer palea acuminate or erect with a short awn. *Fields.*

TRIT'ICUM JUN'CEUM (36). Rushy Wheat-grass. 7—8. Stem
(1753) 2—3 ft. ascending smooth, spike fragile 2—4 in. stout curved, spikelets stout distant, glumes blunt 5—11-ribbed awnless, outer palea blunt or slightly mucronate. *Seashores.*

Triticum vulgare is the cultivated wheat.

XII.—*BRACHYPODIUM.*

Inflorescence a spike, spikelets solitary very many flowered, empty glumes 2 unequal much shorter than the lowest floret, inner palea strongly ciliate on the nerves, outer palea awned.

Root fibrous, awn longer than the outer palea, . . B. sylvaticum.
Root creeping, awn shorter than the outer palea, . B. pinnatum.

BRACHYPO'DIUM SYLVAT'ICUM (105). Slender Wood Brome
(1744) Grass. 6—7. Stem 1—2 ft., root fibrous, leaves broad hairy, spikelets 1—2 in. linear alternate distant, spike 2—6 in. drooping, awn equalling the palea.

Brachypo'dium pinna'tum (35). Spiked Heath Brome Grass. 7—8.
(1745) Stem 1—2 ft., root creeping, leaves narrow rigid nearly smooth, spikelets ¾—1½ in., spike 1—6 in. erect, awn shorter than the palea.
[G. (*Cave Ha' Wood, Giggleswick Scar.*)

XIII.—*MILIUM.*

MIL'IUM EFFU'SUM (80). Spreading Millet Grass. 6. Stem 2—4
(1648) ft. erect smooth, leaves 1—½ in. broad bright green, panicle 5—10 in. lax and very slender, branches capillary drooping in remote half-whorls bearing few 1-flowered very small spikelets, empty glumes 2 equalling the flowering glumes, outer palea smooth awnless. *Damp woods.*

XIV.—*CALAMAGROSTIS.*

Spikelets numerous 1-flowered, empty glumes lanceolate twice as long as the silky-flowering-glume, inner palea small, outer palea awned.

Spikelets in a crowded panicle, ... C. Epigeios.
Spikelets in a loose panicle, ... C. lanceolata.

CALAMAGROS'TIS EPIGEIOS (57). Wood Small-reed. 7—8.
(1660) Stem 2—6 ft., panicle 4—12 in. purplish-brown, crowded much-branched, outer palea with an awn inserted below the tip. *Damp woods.*

Calamagros'tis lanceola'ta (38). Purple-flowered Small-reed. 6—7.
(1661) Stem 3—4 ft. slender, panicle 2—6 in. with slender spreading whorled branches, outer palea with a minute terminal awn enveloped in a pencil of silky hairs longer than the palea. [G. (*Langcliffe*).

XV.—*ARRHENATHERUM.*

ARRHENATHE'RUM ELA'TIOR (110). False Oat-grass. 6—7.
(1684) Stem 3—4 ft. slender, leaves rough flat, panicle 6—12 in. loose with slender branches, spikelets ⅓ in. laterally compressed 2-flowered, staminate floret with a long twisted kneed awn, perfect floret with a short straight bristle. *Fields and hedgerows.*

XVI.—*HOLCUS.*

Panicle loose 2—5 in., spikelets compressed 2-flowered, lower floret perfect awnless, upper floret staminate with the exterior palea awned below the apex.

Awn of barren floret smooth except at the tip, . . H. lanatus.
Awn of barren floret rough throughout, . . . H. mollis.

HOL'CUS LANA'TUS (111). Meadow Soft-grass. 7—8. Stem uni-
(1678) formly woolly, panicle soft of numerous small spikelets tinged with pink, glumes obtuse mucronate, awn included within the glumes smooth except at the tip, root fibrous. *Meadows.*

HOL'CUS MOL'LIS (103). Creeping Soft-grass. 7—8. Stem bearded
(1677) at the nodes, panicle soft of numerous small greenish spikelets, glumes acuminate, awn exserted rough all over, root creeping. *Pastures and hedges.*

XVII.—*FESTUCA.*

Panicle loose, spikelets many-flowered, florets all perfect deciduous, empty glumes 2 shorter than the lowest flowering glumes unequal, outer palea convex mucronate or awned at the tip, scales 2 notched.

Radical leaves narrow, ... F. ovina.

Radical leaves broader than the stem leaves, 644

644 Awn long, 646

644 Awn very short, 645

645 Stem 3—5 ft., panicle spreading much-branched, . . F. elatior.

645 Stem 1—2 ft., panicle close simple, ... F. pratensis.

646 Leaves setaceous, ... F. Myurus.

646 Leaves flat, ... F. gigantea.

FESTU'CA MYU'RUS (98). Rat's-tail Fescue-grass. 6. Stem 6—18
(1723) in. very slender, panicle 2—6 in. slender, one-sided compressed, awn
(1724) slender as long as the glume. *Walls and sandy places.*

FESTU'CA OVI'NA (110). Sheep's Fescue-grass. 6—7. Radical leaves
(1725) setaceous densely tufted glaucous, stem 3—24 in., panicle somewhat
(1726) one-sided, spikelets 4—10-flowered purplish, awn very short. *Dry hilly pastures.*

FESTU'CA GIGAN'TEA (96). Giant Fescue-grass. 7—8. Stem 3—4
(1732) ft., leaves flat $\frac{1}{4}$—$\frac{1}{2}$ in. broad bright green, panicle very open nodding 8—12 in., spikelets $\frac{1}{2}$ in. ovate or oblong pale green, awn twice as long as the glumes. *Shady places.*

FESTU'CA ELA'TIOR (90). Tall Fescue-grass. 7—8. Stem 3—5
(1730) ft., leaves flat $\frac{1}{4}$—$\frac{1}{3}$ in., panicle diffuse nodding 3—6 in. contracted after flowering, spikelets linear oblong $\frac{1}{2}$—$\frac{3}{4}$ in., awn none. *River-banks and wet places.*

FESTU'CA PRATEN'SIS (69). Meadow Fescue-grass. 6—7. Stem
(1719) 1—2 ft. high, leaves flat, panicle close nodding 8—10 in., outer palea
(1720) sometimes shortly awned, spikelets linear 5—10-flowered. *Meadows.*

XVIII.—*AIRA.*

Spikelets laterally compressed 2-flowered in panicles, empty glumes 2 membranous 1-nerved, outer palea membranous 3-nerved awned at the back, awn usually bent in the middle, inner palea bifid 2-nerved, stamens 3.

Inner palea truncate toothed, 647
Inner palea bifid, 648

647 Leaves flat, awn short straight, . . . A. cæspitosa.
647 Leaves setaceous, awn long bent, . . . A. flexuosa.
648 Panicle very spreading, ... A. caryophyllea.
648 Panicle compact spike-like, ... A. præcox.

AIR'A CÆSPITO'SA (111). Tufted Hair-grass. 7—8. Leaves flat
(1673) rough at the edge densely tufted, panicles 4—8 in. nodding, branches slender rough, spikelets ¼ in. shining much compressed, awn short. *Wet pastures.*

AIR'A FLEXUO'SA (105). Waved Hair-grass. 6—7. Leaves filiform,
(1676) stem 1—2 ft. slender erect smooth, panicle 2—5 in. spreading with wavy very slender branches, awn half as long as the spikelets. *Dry woods.*

AIR'A CARYOPHYL'LEA (105). Silver Hair-grass. 6—7. Leaves
(1670) short setaceous, stem 6—9 in., panicle silver-grey 1—2 in. spreading, awn twice as long as its glume twisted. *Sandy meadows.*

AIR'A PRÆ'COX (108). Early Hair-grass. 5—6. Stem 1—4 in.,
(1671) leaves few setaceous, panicle ½ in. contracted with few pale-green spikelets, awn longer than the glume. *Dry pastures.*

XIX.—*AVENA.*

Spikelets large laterally compressed in loose panicles 2- or many-flowered, upper florets usually imperfect, empty glumes 2 membranous equalling the flowering glumes, outer palea bifid with a long bent and twisted awn.

Spikelets erect, 649
Spikelets drooping, 651

649 Radical leaves glabrous, ... A. pratensis.
649 Radical leaves hairy, 650
650 Panicle nearly simple, ... A. flavescens.
650 Panicle much-branched, ... A. pubescens.
651 Spikelets 2-flowered, ... A. strigosa.
651 Spikelets 3-flowered, ... A. fatua.

AVE'NA STRIGO'SA. Stem 1—2 ft. slender, spikelets drooping 2-flowered
(1682) empty glumes 7—9-nerved, glumes and pedicels glabrous, flowering glume bifid, segments awned. [W.

AVE'NA FAT'UA (76). Wild Oats. 6—7. Stem 1—3 ft., leaves bright
(1683) green, panicle 6—10 in. spreading, spikelets 1 in. green drooping usually 3-flowered, glumes and pedicels hairy, awn brown twice as long as the glume. *Cornfields.*

AVE'NA PRATEN'SIS (73). Narrow-leaved Oats. 7—8. Leaves
(1681) glaucous glabrous, panicle erect loose, spikelets erect ½—⅔ in. with 3—5 florets, awns as long as the glume scarcely bent. *Moors and dry pastures.*

AVE'NA FLAVES'CENS (88). Yellow Oats. 6—7. Panicle spread-
(1679) ing 2—4 in., branches many half whorled, spikelets many compressed ½ in. erect yellowish, awns spreading. *Dry pastures.*

AVE'NA PUBES'CENS (85). Downy Oats. 6—7. Panicle erect
(1680) scarcely branched compressed, leaves pubescent, spikelets erect 3-flowered, awns purplish long and spreading. *Dry pastures.*

XX.—*BROMUS.*

Spikelets laterally compressed 5 or more flowered in loose panicles, empty glumes 2 unequal usually keeled shorter than the lowest floret, outer palea convex bifid at the tip with a long awn.

Lower empty glume 1-nerved, 652
Lower empty glume 5-nerved, 653
652 Outer palea twice as long as the awn, 654
652 Outer palea much shorter than the awn, . . B. sterilis.
653 Spikelets pubescent, ... B. mollis.
653 Spikelets rough, 655
654 Panicle erect, ... B. erectus.
654 Panicle nodding, ... B. asper.
655 Flowering glumes imbricate not longer than the awn, B. racemosus.
655 Flowering glumes not imbricate longer than the awn, B. secalinus.

Bro'mus erec'tus (44). Upright Brome-grass. 6—7. Stem 1—3 ft. erect
(1734) glabrous, rootstock creeping, leaves rigid narrow almost subulate, panicle erect narrow flowering, glume lanceolate rough twice as long as the straight awn. [M.

BRO'MUS SECALI'NUS (80). Field Brome-grass. 6—7. Stem 1—4
(1739) ft. erect rigid glabrous, leaves ¼ in. broad, panicle nearly erect hairy, spikelets compressed with 5—8 ovoid closely packed flowering glumes, awns nearly as long as the glumes. *Cornfields.*

BRO'MUS AS'PER (93). Hairy Brome-grass. 7—8. Stem 4—6 ft.
(1733) high slightly rough, panicle drooping 3—5 in. with long slender branches, spikelets thin narrow 7— 10-flowered, awns short. *Damp woods,*

BRO'MUS STER'ILIS (102). Barren Brome-grass. 7—8. Stem
(1738) 1—2 ft. smooth, panicle very slender drooping, spikelets with long awns 2 in. nodding. *Fields and waste places.*

BRO'MUS MOL'LIS (111). Soft Brome-grass. 5—6. Stem 1—2 ft.,
(1942) panicle 1—3 in. erect close, branches very short, spikelets ovate downy, florets imbricated equalling the straight slender awn. *Roadsides and waste places.*

BRO'MUS RACEMO'SUS (85). Smooth Brome-grass. 7—9. Stem
(1740) 2—3 ft., panicle 2—5 in. simple erect close slightly branched, spikelets
(1741) narrow ovate rough, florets imbricated equalling the slender straight awn. *Fields and waste places.*

XXI.—*SESLERIA.*

Sesle'ria cæru'lea (10). Blue Moor-grass. 4—5. Stem 6—18 in. erect
(1688) smooth, panicle bracteate compact spike-like ovate ½—1 in. bluish-grey, empty glumes 2 unequal nearly as long as the 2-flowered spikelet, outer palea keeled and jagged at the end with a very short awn.
[G. (*Settle, Malham Cove, Gordale.*)

XXII.—*CYNOSURUS.*

CYNOSU'RUS CRISTA'TUS (112). Dog's-tail Grass. Gold seed.
(1690) 7—8. Stem 1—2 ft.. panicle spike-like long and narrow one-sided rigid, spikelets in alternate bundles each with an involucre of stiff subulate pectinately arranged empty glumes at the base, outer palea mucronate. *Dry pastures and banks.*

XXIII.—*BRIZA.*

BRI'ZA ME'DIA (105). Quaking Grass. 6—7. Stem 6—12 in. slender,
(1698) panicle loose with large ovate many-flowered spikelets pendulous at the end of the long slender branches, empty glumes 2 equal convex, palea without awns, styles short, stigmas feathery. *Dry pastures.*

XXIV.—*PHRAGMITES.*

PHRAGMI'TES COMMU'NIS (104). Common Reed. 7—8. Stem
(1687) 6—10 ft. erect stout smooth, leaves broad flat rigid, panicle 10—18 in. loose and nodding soft dull purple, spikelets 3—5-flowered, lower florets staminate only, the rest perfect and enveloped in long silky hairs. *Marshes, rivers, and ponds.*

XXV.—*TRIODIA.*

TRIO'DIA DECUM'BENS (103). Heath Grass. 7—8. Stem 6—12
(1686) in. surmounted by a short panicle of a few 2-flowered spikelets on short undivided stalks, empty glumes 2 as long as the florets 3-ribbed, outer palea hairy at the base terminated by 3 teeth, inner palea nearly entire broad ciliate. *Dry mountain pastures.*

XXVI.—*DACTYLIS.*

DAC'TYLIS GLOMERA'TA (112). Cock's-foot Grass. 6—8. Stem
(1696) 2—3 ft., leaves broad rough, panicle distinctly branched green and purple, spikelets in dense tufts many-flowered laterally compressed, empty glumes 2 small lanceolate membranous unequal, outer palea lanceolate with 5 ciliate nerves and a short awn, inner palea bifid. *Pastures and waste places.*

XXVII.—*KOELERIA.*

KOELE'RIA CRISTA'TA (81). 6—7. Stem 6—12 in. slender downy,
(1691) panicle compact 1—3 in. interrupted below silvery, spikelets oblong compressed 2—4-flowered, outer palea acuminate, inner palea bifid. *Banks and pastures.*

XXVIII.—*MELICA.*

Spikelets few ovate with 1—2 perfect awnless florets in a loose raceme or panicle, empty glumes 2 nearly equal, outer palea convex entire.

Spikelets drooping in a one-sided nearly simple raceme, ... M. nutans.

Spikelets erect in a lax panicle, ... M. uniflora.

Mel'ica nu'tans (40). Mountain Melic-grass. 5—6. Spikelets large pur
(1694) plish-brown drooping in a one-sided raceme.
[G. (*Cave Ha' Wood, Stackhouse.*)

MEL'ICA UNIFLO'RA (91). Wood Melic-grass. 5. Panicle only
(1695) slightly drooping branched with few erect spikelets on long slender peduncles each spikelet with one perfect and one staminate floret. *Woods.*

XXIX.—*MOLINIA.*

MOLIN'IA CÆRU'LEA (106). 7—8. Stem 1—2 ft. erect wiry,
(1692) panicle narrow erect 2—8 in. with few narrow erect awnless dark purplish 1—5-flowered spikelets, empty glumes 2 much shorter than the floret convex 1-nerved, outer palea acute with 3 prominent nerves, inner palea 2-nerved. *Wet moors, etc.*

XXX.—*POA.*

Panicle usually loose, spikelets awnless 3- or many-flowered (rarely 2-flowered), empty glumes 2 unequal keeled, lower 1-nerved, upper 3-nerved, outer palea 5-nerved acute, inner palea bifid with acute ciliate nerves.

Stems smooth, 656

Stems rough, ... P. trivialis.

656 Root annual, ... P. annua.

656 Root perennial, 657

657 Stems round, 658

657 Stems compressed, ... P. compressa.

658 Stems stout, 659
658 Stems very slender, ... P. nemoralis.
659 Leaves linear, ... P. pratensis.
659 Leaves short broad mucronate, ... P. alpina.

PO'A TRIVIA'LIS (108). Roughish Meadow Grass. 6—7. Stem and
(1711) leaves rough, panicle green much-branched spreading, spikelets ovate of 2—3 florets connected by a web. *Meadows.*

PO'A AN'NUA (110). Common Meadow Grass. 3—10. Stem com-
(1700) pressed smooth, leaves linear obtuse, panicle spreading, spikelets 5—6-flowered without a web. *Everywhere.*

PO'A COMPRES'SA (69). Flat-stalked Meadow Grass. 6—7. Stem
(1708) compressed 6—8 in., panicle somewhat one-sided close, spikelets of 5—7 florets webbed or not. *Dry banks and walls.*

PO'A NEMORA'LIS (82). Wood Meadow Grass. 7—8. Stem and
(1707) leaves smooth, panicle loose slender nodding, spikelets of 3—5 florets, paleæ pubescent on edges and keel. *Woods.*

PO'A PRATEN'SIS (108). Smooth Meadow Grass. 6—7. Stem 1—2
(1710) ft. round smooth, panicles 2—6 in. diffuse pyramidal, paleæ silky on edge and keel, spikelets of about 4 florets webbed. *Meadows.*

Po'a alpi'na (15). Alpine Meadow Grass. 7—8. Stem 6—8 in. smooth
(1702) slightly compressed, panicle erect, spikelets erect 4—5-flowered, outer palea deep purplish-red silky on the keel, leaves broad firm with thickened edges mucronate. [G. (*Ingleborough.*)

XXXI.—*CATABROSA.*

CATABRO'SA AQUAT'ICA (86). Water Whorl-grass. Aquatic, stem
(1693) 1—2 ft., panicle long pyramidal with whorled branches, spikelets ovate awnless, empty glumes 2 very blunt upper one much the larger toothed at the tip, paleæ thick white. *Watery places.*

XXXII.—*GLYCERIA.*

Spikelets linear 3- or many-flowered in semi-whorled panicles, empty glumes 2 unequal convex awnless, outer palea convex not keeled with entire tip, inner palea bifid with ciliate nerves.

Leaves with entire sheaths, 660
Leaves with split sheaths, 661
660 Panicle much-branched, ... G. aquatica.
660 Panicle nearly simple, ... G. fluitans.
661 Empty glumes 3-nerved, ... G. maritima.
661 Empty glumes 1-nerved, ... G. rigida.

GLYCE'RIA AQUAT'ICA (76). Reed Meadow Grass. 4—8. Stem
(1714) 2—8 ft. stout smooth striate, panicle erect much-branched, spikelets oblong, ¼ in. yellowish-green and purple erect, leaves 1—2 ft. long ⅓—½ in. broad. *Watery places.*

GLYCE'RIA FLUITANS (110). Floating Meadow Grass. 7—8. Stem
(1712) 1—3 ft. stout branched smooth, spikelets ½—2 in. linear erect in a
(1713) nearly simple raceme. *Watery places.*

GLYCE'RIA MARIT'IMA (67). Sea Meadow Grass. 7—9. Root
(1715) creeping, panicle 1—3 in. erect rigid contracted, spikelets flattened narrow ¼—½ in. erect. *Salt marshes.*

GLYCE'RIA RIG'IDA (69). Hard Meadow Grass. 6—7. Stem wiry
(1719) 4—6 in., panicle compressed erect rigid with the branches in two rows, spikelets narrow 7—10-flowered. *Dry rocks, etc.*

ORDER 89.—Filices.

Flowerless plants with distinct stem and simple pinnatifid or pinnate leaf-like *fronds* with forking veins. Fructification of microscopic *spores* contained in minute *spore-cases* or *thecæ* which are collected in patches called *sori* (often covered by a membrane or *indusium*) usually on the under surface or edge of the frond, or rarely on separate fronds or parts of the frond. The leaf-stalk (of which the upper portion is the *rachis* and the lower portion the *stipes*) is usually grooved on the upper surface.

Sori in spikes or panicles, 662
Sori on the frond, 663
662 Barren frond entire or pinnate, 664
662 Barren frond bipinnate, ... Osmunda I.
663 Frond translucent, sori on the margin, . . Hymenophyllum II.
663 Frond opaque, sori on the under surface, 665
664 Sori forming a spike, ... Ophioglossum III.
664 Sori in a panicle, ... Botrychium IV.
665 Indusium present, 666
665 Indusium absent, 667
666 Sori marginal, indusium continuous with the recurved margin of the frond, 668
666 Sori dorsal, 669
667 Sori linear, ... Ceterach V.
667 Sori globose, ... Polypodium VI.

668 Fronds all similar, ... Pteris VII.
668 Fertile and barren fronds unlike, 670
669 Sori linear, 671
669 Sori globose, 672
670 Barren fronds pinnatifid with entire segments, ... Blechnum VIII.
670 Barren fronds bi- or tri-pinnate, . . . Allosorus IX.
671 Sori and indusium single, 673
671 Sori double parallel, indusium double, . . Scolopendrium X.
672 Indusium hooded, on one side of the sorus, Cystopteris XI.
672 Indusium roundish, above the sorus, 674
673 Indusium with entire margins, ... Asplenium XII.
673 Indusium fringed at the end, ... Athyrium XIII.
674 Indusium circular, ... Polystichum XIV.
674 Indusium reniform, ... Lastrea XV.

I.—*OSMUNDA.*

OSMUN'DA REGA'LIS (85). Royal Fern. 6—8. Stem 2—10 ft.
(1806) high, fronds bipinnate fertile at the top the thecæ forming a terminal brown panicle. *Bogs, locally abundant.*

II.—*HYMENOPHYLLUM.*

Hymenophyl'lum unilatera'le (47). Filmy Fern. 6—7. Stem 1—3 in.
(1762) filiform creeping, fronds transparent pinnate, pinnules curving backwards serrate. [G. (*Ingleborough.*)

III.—*OPHIOGLOSSUM.*

OPHIOGLOS'SUM VULGA'TUM (87). Adder's Tongue. 6—8.
(1807) Stem 2—8 in., fronds a barren oblong or lanceolate frond and a fertile 2-rowed spike of sori. *Moist pastures.*

IV.—*BOTRYCHIUM.*

BOTRYCH'IUM LUNA'RIA (96). Moon-wort. 6—8. Barren frond
(1809) pinnate erect with semicircular closely set pinnæ, fertile frond a terminal panicle. *Pastures and banks.*

V.—*CETERACH.*

CE'TERACH OFFICINA'RUM (65). Scaly Fern. 4—10. Frond
(1781) leathery 4—6 in. pinnatifid green above densely covered with brown scales beneath, sori oblong covered with chaffy scales, indusium absent. *Rocks and walls.*

VI.—*POLYPODIUM.*

Indusium absent, sori roundish the margin of the frond not being reflexed to cover them.

Veins branched, ... P. vulgare.

Veins simple, each reaching nearly to the margin, 675

675 Fronds pinnate, lowest pinnæ turning downwards, ... P. Phegopteris.

675 Frond ternate, 676

676 Frond equally 3-branched, tender, ... P. Dryopteris.

676 Frond triangular, somewhat 3-branched, rigid, . . P. calcareum.

POLYPO'DIUM VULGA'RE (112). Common Polypody. 6—8.
(1801) Rhizome creeping densely covered with pale-brown scales, fronds 6—12 in. deeply pinnatifid, segments ¼—½ in. broad linear-oblong obtuse. *Walls and banks.*

POLYPO'DIUM PHEGOP'TERIS (73). Beech-fern. 6—8. Fronds
(1804) 6—9 in. pinnate, pinnæ united at the base pinnatifid, lowest pair deflexed, segments ciliate. *Woods and damp shady places.*

POLYPO'DIUM DRYOP'TERIS (69). Oak Fern. 6—8. Fronds
(1802) with three branches each pinnate with the pinnæ deeply pinnatifid (lower ones larger and again pinnate), upper pinnæ entire. *Woods and dry shady places.*

Polypo'dium calca'reum (24). Mountain Polypody. 6—8. Frond pin-
(1803) nate, lower branches again pinnate, upper ones simply pinnatifid erect rigid. [G. (*Moughton, Feizor, Malham Tarn.*)

VII.—*PTERIS.*

PTE'RIS AQUILI'NA (112). Common Bracken. 7—8. Fronds 1—6
(1765) ft. high tripartite, branches bipinnate, pinnules linear-lanceolate sessile often 1 in. long, upper undivided lower pinnatifid with obtuse segments. *Forests, heaths, and moors.*

VIII.—*BLECHNUM.*

BLECH'NUM BOREA'LE (111). Hard-fern. 7—8. Fronds tufted
(1767) 6—9 in. dissimilar, barren frond pinnatifid with lanceolate obtuse pinnæ, fertile frond pinnate with acute linear pinnæ with longer stipes than the barren frond. *Woods and banks.*

IX.—*ALLOSORUS.*

ALLOSO'RUS CRIS'PUS (54). Parsley-fern. 7—8. Fronds 3—8
(1766) in. dissimilar, barren fronds bi- or tri-pinnate with wedge-shaped segments, fertile fronds bipinnate with oblong fusiform pinnules. *Stony places in mountain districts.*

X.—*SCOLOPENDRIUM.*

SCOLOPEN'DRIUM VULGA'RE (96). Hart's-tongue Fern. 7—8.
(1782) Fronds tufted ½—2 ft. oblong-ligulate often cordate at the base, margin waved. *Shady places.*

XI.—*CYSTOPTERIS.*

CYSTOP'TERIS FRAG'ILIS (79). Bladder-fern. 7—8. Fronds
(1785) 4—8 in. transparent lanceolate bipinnate, pinnæ ovato-lanceolate, pinnules variously toothed. *Rocks and walls.*

XII.—*ASPLENIUM.*

Sori oblong or linear dorsal, indusium similarly shaped attached to a lateral vein and opening longitudinally towards the midrib of the pinnule.

Ultimate pinnules with a distinct midrib, 677
Ultimate pinnules without a midrib, . . . A. Ruta-muraria.
677 Stipes green, ... A. viride.
677 Stipes dark purple, 678
678 Fronds triangular bi- or tri-pinnate, . . . A. Adiantum-nigrum.
678 Fronds simply pinnate, 679
679 Fronds linear, pinnate thin oblong, . . A. Trichomanes.
679 Fronds lanceolate pinnate thick ovate, . . A. marinum.

ASPLE'NIUM RUTA-MURA'RIA (105). Wall-rue Spleenwort.
(1775) 6—10. Frond 1—2 in. oblong or ovate irregularly bipinnate with obovate rhomboidal or cuneate pinnules. *Walls and rocks.*

Asple'nium vir'ide (41). Green Spleenwort. 6—9. Frond 6—12 in.
(1772) linear pinnate with a green stalk and roundish-ovate obtusely serrate pinnæ. [G. (*Scar, Austwick Scar.*)

ASPLE'NIUM ADIAN'TUM-NIGRUM (102). Black Spleenwort.
(1770) 6—10. Frond 6—12 in. triangular bi- or tri-pinnate, pinnæ triangular, pinnules ovato-lanceolate ⅓—⅔ in. petiolate deeply serrate, stipes dark purple. *Banks and walls.*

ASPLE'NIUM TRICHOM'ANES (108). Black or Maidenhair Spleen-
(1773) wort. 6—9. Frond 6—12 in. linear pinnate with a black stalk and roundish-oblong crenate pinnæ. *Walls and rocks.*

Asple'nium mari'num (50). Sea Spleenwort. 6—9. Frond 3—10 in.
(1771) coriaceous lanceolate pinnate, pinnæ 1—2 in. obliquely ovate serrate *Sea-cliffs and caves.*

XIII.—*ATHYRIUM.*

ATHYRIUM FELIX-FŒMINA (110). Lady-fern. 7—8. Rhizome (1778) and stipes covered with numerous brown scales, fronds 1—5 ft. oblong-lanceolate bipinnate, pinnules numerous closely-set oblong serrate lower ones pinnatifid. *Moist and shady places.*

XIV.—*POLYSTICHUM.*

Sori roundish scattered, indusium circular above the sorus attached by the centre (peltate).

Fronds linear lanceolate pinnate, ... P. Lonchitis.
Fronds lanceolate bipinnate, ... P. aculeatum.

Polys'tichum Lonchi'tis (22). Holly Fern. 6—7. Fronds densely tufted (1788) 6—18 in. linear-oblong rigid prickly simply pinnate, pinnæ many lanceolate somewhat sickle-shaped closely set, base oblique acutely auricled on the upper side. [G. (*Penyghent*, *Moughton.*)

POLYS'TICHUM ACULEA'TUM (100). Prickly Shield-fern. 6—8. (1789) Fronds 6—12 in. variable lanceolate bipinnate (sometimes simply pin-(1790) nate), pinnæ ovate oblique at the base the first pinnule on the upper side being largest, margins serrate, teeth mucronate. *Woods and moist shady places.*

XV.—*LASTREA.*

Sori roundish scattered, indusium reniform attached by the sinus.

Fronds pinnate, pinnæ pinnatifid, 680
Fronds bipinnate, 681

Frond tripinnate, ... { L. spinulosa. (See also L. æmula.)

680 Fragrant, under surface covered with yellow glands, ... L. Oreopteris.
680 Not glandular, ... L. Thelypteris.
681 Frond ovato-lanceolate, ... L. Filix-mas.
681 Frond oblong-lanceolate, ... L. rigida.
681 Frond ovato-triangular, 682
682 Stipes covered with many pale-brown scales, . L. æmula.
682 Scales on stipes dark-brown in the centre, . L. dilatata.

LASTRE'A SPINULO'SA (83). Spiny Buckler-Fern. 7—8. Frond (1798) 1—1½ ft. oblong-lanceolate erect bipinnate the lower pinnæ unequally triangular the pinnules on the lower side being twice the length of those on the upper side, pinnules ovato-lanceolate 1 in. or more deeply pinnatifid or pinnate. *Woods and damp shady places.*

LASTRE'A OREOP'TERIS (97). Sweet Mountain Fern. 7—8.
(1792) Fronds 2—3 ft. in circular tufts, stipes very short covered with pale-brown scales, fronds broadly oblong-lanceolate pinnate, pinnæ 3—4 in. lanceolate pinnatifid glandular beneath, lower ones smaller and more distant. *Heaths and mountain pastures.*

Lastre'a Thelyp'teris (41). Marsh-fern. 7—8. Root creeping, stipes
(1791) smooth, fronds not tufted 1—2 ft. lanceolate pinnate, pinnæ 2—3 in. deeply pinnatifid scarcely smaller below. [G.

LASTRE'A FI'LIX-MAS (112). Male Fern. 7—8. Fronds 2—3 ft.
(1793) in circular tufts, stipes and rachis with lanceolate scales, fronds ovato-lanceolate (or oblong-lanceolate) bipinnate, pinnæ 4—5 in. those at the base of the frond somewhat smaller, pinnules obtuse serrate sometimes almost joined at their base. *Shady places.*

Lastre'a rig'ida (6). Rigid Buckler-fern. 7—8. Frond 1—2 ft. tufted
(1794) oblong-lanceolate bipinnate glandular and fragrant, pinnæ 2—3 in. not smaller at the base of the frond, pinnules serrate contracted at the base, stipes scaly. [G. (*Attermire, Ingleborough, Penyghent.*)

Lastre'a æ'mula (34). Recurved Fern. 7—9. Frond tufted ovato triangu-
(1800) lar bipinnate, pinnules deeply pinnatifid almost pinnate, lobes serrate, lower pinnæ triangular-ovate with larger pinnules at the base and on the under side, pinnules triangular ovate with the edge curved so as to be concave above, glandular beneath with a fragrance of hay. *Settle.*

LASTRE'A DILATA'TA (76). Broad Prickly-toothed Fern. 8—9.
(1799) Frond 3—5 ft. dark green ovato-triangular bipinnate, pinnules pinnatifid larger ones almost pinnate, segments serrate, lower pinnæ triangular with larger pinnules on the under side, stipes covered with lanceolate scales dark brown in the centre pale at the margin. *Moist woods and shady and rocky places.*

ORDER 90.—Lycopodiaceæ.

Moss-like flowerless plants with creeping or erect stems. Leaves veinless scale-like closely imbricated on the dichotomous stems. Fructification by spores contained in *thecæ* situated in the axils of the leaves or of the scales of terminal contracted cone-like portions of the branches.

Spores of two kinds, large and small, 683
Spores all alike, ... Lycopodium II.
683 Leaves erect setaceous, ... Pilularia III.
683 Leaves lanceolate imbricated, . . . Selaginella I.

I.—*SELAGINELLA.*

SELAGINEL'LA SELAGINOI'DES (55). Lesser Club-moss. 6—8.
(1828) Stem decumbent 2—4 in. with lanceolate leaves $\frac{1}{8}$—$\frac{1}{6}$ in., thecæ of 2 kinds in terminal cones minute globose capsules containing *microspores* and larger 2—4-valved capsules containing each a few *macrospores* *Wet stony places.*

II.—*LYCOPODIUM.*

Thecæ of one kind reniform, flattened, coriaceous.

Capsules in terminal cones, 684

Capsules axillary, ... L. Selago.

684 Spikes in pairs stalked, ... L. clavatum.

684 Spikes solitary sessile, ... L. alpinum.

LYCOPO'DIUM SELA'GO (83). Fir Club-moss. 6—8. Stem 2—6
(1822) in. erect forked, leaves in 8 rows linear-lanceolate acute, capsules axillary. *Heaths.*

LYCOPO'DIUM CLAVA'TUM (88). Common Club-moss, Stag's-
(1825) horn moss. 7—8. Stem 1—3 ft. long creeping, leaves imbricated all round terminated by hairs, spikes stalked. *Heaths.*

LYCOPO'DIUM ALPI'NUM (55). Alpine Club-moss. 6—8. Stem
(1826) 6—18 in. long creeping, leaves in 4 rows lanceolate, spikes sessile. *Mountains.*

III.—*PILULARIA.*

PILULA'RIA GLOBULIF'ERA (56). Pill-wort. 6—8. Rootstock
(1832) creeping under water, leaves bright green 2—3 in. subulate, capsules globular axillary sessile 4-celled containing each a few *macrospores* and many *microspores*. *Lakes and ponds.*

ORDER 91.—Equisetaceæ.

Flowerless plants with a distinct hollow and jointed stem, the joints surrounded by membranous toothed sheaths, fructification in terminal cone-like spikes or catkins consisting of polygonal scales bearing capsules on the under surface which contain numerous globose spores each provided with 4 elastic clavate threads.

Fruiting stems simple succulent appearing before the branched barren stem, 685

Fertile and barren stems similar, 686

685 Branches erect, ... E. maximum.

685 Branches spreading, ... E. arvense.

686 Branches compound, ... E. sylvaticum.

686 Branches simple, 687

687 Stems smooth faintly striate, . . . E. limosum.

687 Stem grooved rough, 688

688 Stem with 4—10 grooves, 689

688 Stem with 15—23 striæ, ... E. hyemale.

689 Sheaths with obtuse bristle-pointed teeth, . E. variegatum.

689 Sheath with acute membranous-tipped teeth, . E. palustre.

EQUISE'TUM MAX'IMUM (77). Great Water Horsetail. 4—5.
(1811) Barren stem 3—4 ft. with about 30 striæ and nearly erect simple branches, fruiting stem 8—10 in. with large lax sheaths. *Bogs and ditches.*

EQUISE'TUM ARVEN'SE (108). Corn Horsetail. 4. Barren stems
(1812) with 8—16 grooves rough ending in a long naked point, branches crowded spreading, fertile stems stout short with distant loose sheaths. *Roadsides and fields.*

EQUISE'TUM SYLVAT'ICUM (90). Branched Wood Horsetail.
(1814) 4—5. Stem with about 12 grooves, sheaths lax with 3—4 long membranous teeth, branches compound whorled recurved or deflexed. *Moist woods and banks.*

EQUISE'TUM LIMO'SUM (103). Smooth Naked Horsetail. 6—7.
(1817) Stem 1—3 ft. smooth with faint striæ, branches wanting or simple erect whorled, sheaths short with short rigid teeth. *Bogs.*

Equise'tum hyema'le (41). Rough Horsetail. 7—8. Stem rough with
(1818) 8—12 striæ, branches radical long flexuous, sheaths close whitish with black base and tip, teeth black bristle-pointed deciduous
[G. (*Settle*), S.

Equise'tum variega'tum (24). Variegated Rough Horsetail. 7—8. Stems
(1821) rough with 4—10 furrows filiform simple or branched only at the base, sheaths short green below black above with obtuse bristle-pointed teeth.
[G. (*Swarth moor*).

EQUISE'TUM PALUS'TRE (104). Marsh Horsetail. 6—7. Stems
(1815) 6—18 in. with simple whorled branches with 5—12 deep grooves, sheaths short, teeth acute with membranous tips. *Bogs.*

GLOSSARY.

Accumbent—Applied to the cotyledons when so arranged that their edges are next the radicle.

Achene—A one-seeded indehiscent seed-like fruit as in the buttercup.

Acicular—Needle-shaped.

Acuminate—Ending in a long point.

Acute—Sharp-pointed.

Adnate—United to another organ throughout its length.

Adpressed—Closely applied to a surface.

Æstivation—The mode in which the flower is folded in the bud.

Amplexicaul—Embracing the stem.

Apocarpous—When the pistil is composed of separate carpels.

Arillus—An extra covering on the seed, a growth from the placenta, *e.g.* *Mace* is the arillus of the nutmeg.

Articulated—Jointed.

Auricled—With an ear-like appendage as the lobes at the base of some leaves.

Awn—A bristle or slender prolongation of an organ, *e.g.* the 'beard' of oats or barley.

Axil—The upper angle between a leaf and the stem.

Axile—When the placenta occupies the point of junction of the dissepiments in the centre of the ovary.

Axillary—Growing in the axil of a leaf.

Basilar—Growing from the base of an organ, as the style in Boraginaceæ and Labiatæ.

Bifarious—In two rows.

Bifid—Divided nearly to the middle.

Bipinnate—Applied to a pinnate leaf the divisions of which are also pinnate.

Bipinnatifid—Applied to a simple pinnatifid leaf the divisions of which are also pinnatifid.

Biternate—Applied to a ternate leaf each division of which is also ternate.

Bract—A leaf more or less resembling the ordinary leaves from the axil of which a flower grows.

Bracteole—The small bract of an individual flower of an inflorescence.

Caducous—Falling off very early.

Campanulate—Bell-shaped.

Capillary—Filiform, thread-like.

Capitate—With a rounded end like the head of a pin.

Capitulum—A close head of sessile-flowers, *e.g.* a daisy.

Capsule—A dry seed-vessel opening by valves or pores as in Fox-glove and Rose-campion.

Carpel—One of the 'leaves' of which the pistil is composed, whether united or separate.

Catkin—A deciduous spike.

Cauline—Growing on the stem.

Ciliate—Covered with short hairs.

Clavate—Club-shaped.

Claw—The narrow part of a petal corresponding to the petiole of a leaf.

Coccus—The 1-seeded carpel of a syncarpous fruit, of which the carpels separate from each other when ripe.

Conduplicate—Applied to the cotyledons when folded together so as to embrace the radicle.

Cone—The conically arranged scales of the fruit of the fir.

Connate—When the bases of two opposite leaves are united, or when any two parts usually distinct are united.

Connective—That by which the lobes of the anther are joined.

Connivent—Arching over so as to meet.

Convolute—When one part is rolled up in another, *e.g.* the petals of the Wallflower.

Cordate—Heart-shaped.

Coriaceous—Leathery.

Corona—Any organ between the corolla and stamens, *e.g.* the 'cup' of a daffodil.

Corymb—A raceme in which the lower flower-stalks are so much longer than the others as to bring all the flowers to nearly the same level.

Corymbose—In the form of a corymb.

Crenate—With rounded divisions at the margin.

Cruciform—Arranged like the parts of a cross, as the corolla of Wallflower.

Cuneate—Wedge-shaped.

Cyme—An inflorescence in which the primary axis ends in a flower (the first to open) from each side of which branches a second axis, terminating in like manner in a flower and branching again like the primary axis.

Deciduous—Falling off early.

Decumbent—Lying flat on the ground and rising at the apex.

Decurrent—Applied to leaves (as in the Thistle) of which the petiole is continued down the side of the stem, in which case the stem is said to be winged.

Decussate—Opposite leaves of which each pair is at right angles with the pairs above and below.

Dehiscence—Mode of opening, as of a seed-vessel.

Dentate—With short triangular marginal divisions.

Diadelphous—Applied to the stamens when they are in two bundles united by their filaments.

Dichotomous—Dividing into two, each division again into two, and so on.

Dicoccous—Consisting of two *cocci*, as the fruit of Dog's Mercury.

Didynamous—Applied to the stamens, 2 long and 2 short.

Digitate—Applied to a compound leaf when the leaflets diverge from one point, *e.g.* the horse-chestnut.

Dicœcious—With staminate and pistillate flowers on different plants.

Disk—The part of the flower between the stamens and pistil.

Dissepiment—A division in the ovary.

Dorsal—On the back. The dorsal suture is the suture of the carpel furthest from the axis.

Drupe—A fleshy fruit with a stony endocarp like the cherry.

Emarginate—With a portion cut out of the end.

Endocarp—The inner layer of the pericarp next the seed.

Ensiform—Sword-shaped.

Entire—Without marginal divisions.

Epicarp—The outer covering of the fruit.

Epigynous—Seated upon the ovary in consequence of adhesion to it.

Epipetalous—Growing on the petals.

Exalbuminous—Without albumen.

Exserted—Extending beyond an organ, as when the stamens project from the corolla.

Exstipulate—Without stipules.

Falcate—Bent like a sickle.

Fascicled—In bundles.

Filamentous—Split into filaments.

Filiform—Capillary, thread-like.

Fistular—Hollow.

Flocculent—Covered with wool-like tufts.

Follicle—A one-celled many-seeded dehiscent carpel.

Free-central—When the placenta occupies the centre of the ovary and is not connected with the walls of the ovary.

Fugacious—Falling off early.

Fusiform—Spindle-shaped.

Gamopetalous—With united petals.

Gamosepalous—With united sepals.

Geniculate—Bent like a knee.

Glabrous—Smooth, without hairs.

Glands—Secreting organs, as the stings of the nettle the hairs (furnishing a sticky secretion) seen on the leaves of the Sundew.

Glaucous—Covered with a pale-green bloom.

Globose—Rounded.

Glumaceous—Formed of glumes.

Glume—A chaffy or membranous bract, *see* Gramineæ, p. 160.

Hastate—Spear- or halbert-shaped.

Hispid—Covered with long harsh hairs.

Hypogynous—Inserted below the ovary.

Imbricated—Overlapping, like the tiles on a roof.

Incumbent—Applied to the cotyledons when so folded that their flat sides are next the radicle.

Indefinite—Varying in number, more than 20.

Indehiscent—Not splitting open when ripe.

Indusium—the membranous cover over the spore cases of ferns.

Involucel—The bracts at the base of the partial umbels in Umbelliferæ, or surrounding the flowers of the flower-head in Dipsaceæ.

Involucre—The bracts surrounding the general umbel in Umbelliferæ, or the flower-head in Compositæ.

Irregular—Having some of the sepals or petals larger than the rest or differently shaped.

Laciniate—Irregularly cut into fringe-like segments.

Lateral—From the side of the axis, not terminal.

Legume—A many-seeded *pod* of one carpel, as in the pea, dehiscing usually by both sutures.

Lenticular—Like a double convex lens.

Ligulate—Strap-shaped, like the corolla in the Dandelion.

Limb—The broad part of a sepal or petal, or the blade of a leaf.

Loculicidal—Dehiscence through the back of the carpels.

Lyrate—A pinnatifid leaf with the terminal lobe the largest, as in *Barbarea*

Mesocarp—The middle covering of the fruit.

Monadelphous—United into one bundle by union of the filaments.

Monœcious—With staminate and pistillate flowers on the same plant.

Mucronate—Terminating abruptly in a stiff point.

Neuter—A flower having no stamens or pistil.

Node—The point of a stem from which a leaf grows.

Obcordate—Inversely heart-shaped.

Obovate—Inversely egg-shaped, the narrow part nearest the stem.

Obtuse—With a blunt end, not pointed.

Ochrea—A term applied to the sheathing stipule of Polygonaceæ.

Orbicular—Round or shield-shaped, with the petiole attached to the centre.

Ovate—Egg-shaped, the broad part being nearer the stem.

Ovules—The young seeds.

Palmate—Having five lobes, the mid-ribs meeting at one point, *e.g.* the leaf of the Maple.

Palmatifid—Cut half way down, so as to resemble a palmate leaf.

Panicle—A compound raceme in which the pedicels are branched.

Papilionaceous—Having a corolla like that of the pea.

Pappus—The hairs surmounting the ovary which constitute the calyx in Compositæ.

Parietal—Growing on the wall of the ovary.

Pectinate—Divided into narrow segments like the teeth of a comb.

Pedicel—The stalk of a single flower.

Peduncle—The stalk of the flower or flower-head.

Peltate—Shield-shaped, attached to the stalk by the centre.

Pendulous—Hanging, as ovules which are suspended from the upper part of the ovary.

Perfect—Applied to the flower, having both stamens and pistil.

Perianth—Calyx and corolla together, or the calyx when there is no corolla.

Pericarp—The covering of the fruit, including the *epicarp*, *mesocarp*, and [*endocarp*.

Perigynous—Growing on the calyx.

Persistent—Not falling off.

Personate—Applied to a 2-lipped corolla in which the lips are pressed together as in Snapdragon.

Petiolate—Having a petiole or leaf-stalk.

Pilose—Consisting of hairs; a pappus in which the hairs are simple is pilose.

Pinnate—A *compound* leaf with leaflets arranged on opposite sides of a leaf-stalk.

Pinnatifid—A *simple* leaf with the segments arranged like the leaflets in a pinnate leaf.

Placenta—The part on which the ovules grow.

Placentation—The mode of arrangement of the placenta and ovules.

Plumose—Feathery; a pappus in which the hairs are branched is plumose.

Polyadelphous—United by the filaments into more than two bundles.

Polypetalous—With petals not united.

Polysepalous—With sepals not united.

Pome—A fleshy many-celled indehiscent fruit with cartilaginous endocarp like the apple.

Procumbent—Lying on the ground.

Pubescent—Covered with short soft hairs.

Raceme—An inflorescence in which the flowers are arranged singly on pedicels along a primary axis.

Radical—Belonging to the root, growing close to the ground.

Receptacle—The flattened and expanded end of the peduncle.

Reflexed—Bent backwards.

Regular—With sepals (and petals) about the same size and shape.

Reniform—Kidney-shaped.

Revolute—With the edges rolled backwards.

Ringent—With the upper lip arched.

Rotate—With the regular gamopetalous limb spreading out at right angles to the short tube of the corolla.

Runcinate—Shaped like a Dandelion leaf, with the divisions pointing backwards.

Saccate—Forming a sort of bag.

Sagittate—Arrow-shaped.

Samara—The winged dry fruit of Elm, Sycamore, etc.

Scape—A naked flower-stalk.

Scarious—Scale-like membranous dry and shrivelled.

Scorpioidal—Coiled up like the tail of a scorpion.

Septicidal—Dehiscing through the septa so as to resolve the fruit into its component carpels.

Serrate—With teeth pointing forward like those of a saw.

Sessile—Without a stalk.

Setaceous—Bristle-like.

Sinuous—With a wavy margin.

Sinus—The recess formed when the edge is lobed.

Sorus—A cluster of spore-cases.

Spadix—A succulent spike bearing staminate and pistillate flowers.

Spathe—A large membranous bract enclosing many flowers.

Spathulate—Shaped like a daisy leaf.

Spike—An inflorescence in which numerous flowers are sessile along the primary axis.

Staminode—An imperfect stamen.

Subulate—Awl-shaped.

Succulent—Thick and fleshy.

Suture—The line of junction of separate organs or of parts of the same organ folded over.

Syncarpous—With the carpels united.

Syngenesious—With the anthers united.

Terete—Nearly cylindrical, without angles.

Ternate—Applied to a compound leaf consisting of three leaflets.

Tetradynamous—With four long stamens and two short ones.

Thecæ—The spore-cases of ferns, etc.

Torulose—Beaded.

Trifarious—In three rows.

Trifid—Divided into three.

Trifoliate—The same as ternate.

Tripinnate—A pinnate leaf in which the pinnæ themselves are bipinnate.

Triternate—A biternate leaf of which each leaflet is also ternate.

Truncate—Terminating abruptly as though cut off.

Tubercled—Covered with little excrescences.

Tubular—Shaped like the yellow florets of a daisy.

Turbinate—In the form of a top.

Umbel—An inflorescence in which the pedicels all grow from one point.

Unilateral—One-sided.

Urceolate—Urn-shaped, swollen in the middle contracted above and below.

Ventricose—Swelling unequally on one side.

Versatile—Applied to an anther attached by one point to the filaments so as to be easily turned about.

Verticillate—Whorled.

Viscid—Sticky.

Whorled—With several leaves arranged in a circle round the stem at the same height.

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